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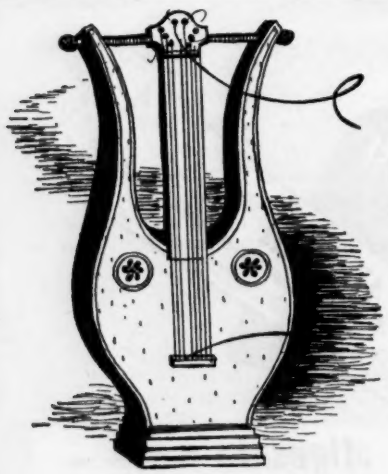

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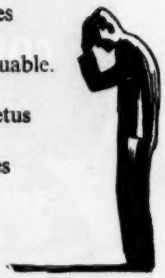

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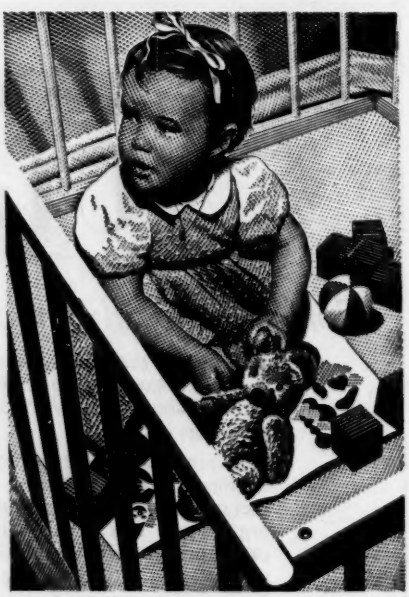

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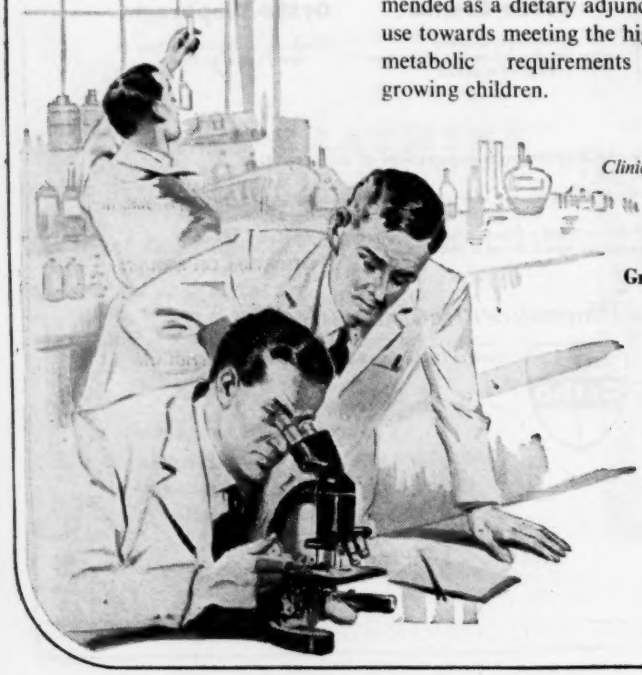

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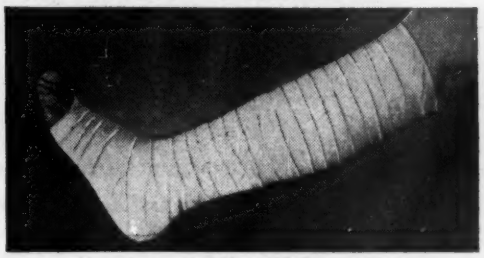

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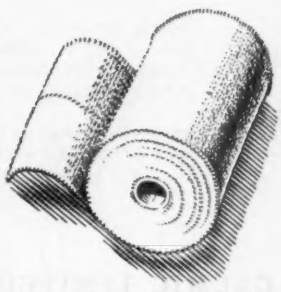

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Compared with the many other hypotensive agents known to medicine, *Methium Chloride* has the advantages that it can be given by mouth in gradually increasing doses, that the safety margin is adequate and side-effects controllable, and there is no risk of bromide or iodide intoxication.

Dosage:
As with other methonium salts, the individual dose varies from patient to patient, each of whom must be carefully examined and assessed in order to find the correct dosage.

Packing:
Methium Chloride is an S.IV poison, not subject to purchase tax. It is supplied in 125 mg. and 250 mg. strengths. Literature giving full particulars and a trial supply of Methium Chloride, supplied on request.
Methium Chloride is listed in Category 1 of the Cohen Report and is therefore a recognized drug that can be widely prescribed under the N.H.S.

CHILCOTT *Laboratories, LTD*
SOLE DISTRIBUTORS
William R. Warner & Co. Ltd., Power Road, London, W.4.

VITAPLEX

vitamin B complex concentrate in natural form

VITAPLEX provides *all* the elements of the vitamin B complex in their natural form. It is prepared by a special process of extraction and concentration from BREWERS' YEAST. The quantities of aneurine (B_1), riboflavine (B_2) and nicotinamide are standardised.

PREPARED FROM BREWERS' YEAST

Composition

SIX VITAPLEX tablets (the normal daily dose) contain :

3 grammes of yeast concentrate containing the whole natural vitamin B complex and including :—

Aneurine hydrochloride (B_1) ...3 mg.

Riboflavine (B_2) .....6 mg.

Nicotinamide.....30 mg.

and Pantothenic acid, pyridoxine, folic acid, choline, inositol, biotin, para-aminobenzoic acid and other naturally occurring factors of the vitamin B complex.

Vitamin B deficiency, especially in its early and mild forms, is rapidly and effectively corrected by administration of VITAPLEX. The familiar symptoms — fatigue, lack of energy, anorexia, gastric and bowel disturbances, lowered resistance to common infections, etc. — are usually associated with nutritional inadequacy, adolescence, pregnancy, convalescence, stress and debility.

VITAPLEX is specially useful as a routine measure after treatment with antibiotics.

The presentation and price entirely conform with current economic requirements.

PACKINGS & PRICES: In containers of 50 tablets at 4/- and 250 tablets at 18/-. These prices are subject to the usual professional discounts.

A sample and detailed literature will be sent on request.

BENCARD

Manufactured in the laboratories of

C. L. BENCARD LTD

PARK ROYAL · LONDON N.W.10

WHILE MAN SLEEPS, *the badger emerges from its 'cete' or burrow, and makes nocturnal expeditions in search of its food. But some of mankind, too, are awake—unwillingly. Their problem is:*

Soothing the cough that causes insomnia

In tracheitis and bronchitis the sleeplessness caused by a persistent, unproductive cough can be very exhausting. Tusana Cocillana Cough Linctus is invaluable in such cases. It provides a blend of expectorants to loosen the tenacious mucus, and the central sedative, codeine, to depress the cough reflex. By breaking the vicious circle of coughing and irritation, Tusana allows the patient to sleep and gather strength for recovery. The tendency of codeine to cause constipation is offset by the inclusion of a little extract of senna in the formula.

Supplied in bottles of 4 fl.oz. – 2/9d. or in tax-free dispensing packs of 20 fl.oz. – 10/7½d. and 80 fl.oz. – 38/3d.

Prices net to the Medical Profession in Great Britain

TUSANA

COCILLANA COUGH LINCTUS

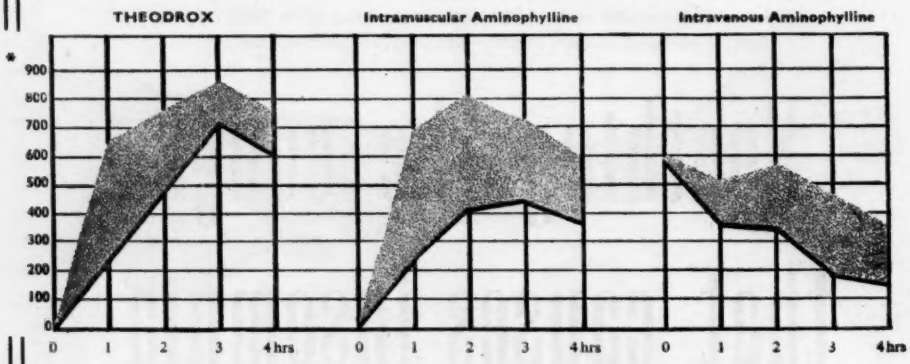
Literature and further information from the Medical Department

BOOTS PURE DRUG COMPANY LIMITED NOTTINGHAM ENGLAND

THEODROX

ADEQUATE ORAL AMINOPHYLLINE

The tables below show blood levels obtained after a single dose of aminophylline parenterally and a single dose of oral Theodrox. The blood levels produced by oral Theodrox compare favourably with those produced by parenteral administration of aminophylline.



* *Micrograms of theophylline per 100 c.c. of blood.*

Prior to the introduction of Theodrox the usefulness of oral aminophylline has been limited by failure to obtain adequate blood levels because of gastric intolerance. With Theodrox this difficulty is overcome and effective oral dosage is entirely feasible.

Each tablet of Theodrox contains 3 gr. of aminophylline B.P. with 4 gr. of dried aluminium hydroxide gel, B.P.C.

In the form of Theodrox, aminophylline can be administered orally to produce results comparable with intravenous or intramuscular dosage, yet without the inconvenience and danger of parenteral administration.

Theodrox is supplied in containers of 25, 100 and 1,000 tablets.

Theodrox is also available as Theodrox with Phenobarbitone, each tablet containing in addition $\frac{1}{8}$ gr. of Phenobarbitone B.P.

REFERENCES

Administration of Aminophylline, *J. Amer. Med. Ass.*, 143 : 736, June, 1950. (This study does not refer to Theodrox.)

A New Approach to Increasing Tolerance to Oral Aminophylline. *Postgrad. Med.* 13 : 432, May, 1953. Abstracted ; *Practitioner* 171 : 328 (Sept. 1953)

Studies with Two New Theophylline Preparations, *Amer. J. med. Sci.*, 224 : 627, 1952.

THEODROX is a trade mark of

RIKER LABORATORIES LTD. 29 KIRKEWHITE ST., NOTTINGHAM

Detailed literature gladly sent on request.

Nulacin for continuous, maintained gastric anacidity

IT has long been recognized that the most rapid relief of the pain and discomfort of peptic ulcer and most rapid healing of the lesion are achieved when a continuous state of gastric anacidity is maintained.

Heretofore, such a state has only been possible with hospitalization and discomfort to the patient. Now, NULACIN offers all the advantages of continuous drip therapy without the attendant inconveniences.

NULACIN accomplishes this desirable aim simply and effectively. A NULACIN tablet placed between the cheek and the gum dissolves slowly and releases its contained medicaments at a rate that achieves the effect of intragastric milk-alkali drip therapy. By maintaining a prolonged influence NULACIN accomplishes its acid-neutralizing effect with considerably less antacid than would be required by any other method employing oral administration.

INDICATIONS: NULACIN tablets are indicated whenever acid neutralization of the gastric contents is required; in active and quiescent peptic ulcer, gastritis, gastric hyperacidity.

Dosage

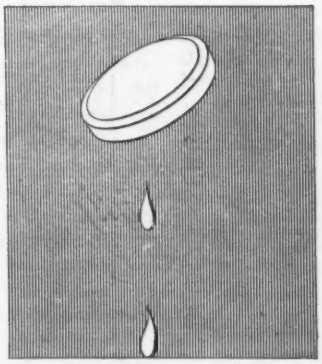
Beginning half-an-hour after food a NULACIN tablet should be placed in the mouth and allowed to dissolve slowly.

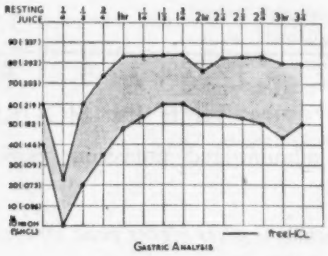
During the stage of ulcer activity up to three tablets an hour may be required. During quiescent periods, for prophylaxis in peptic ulcer and for the relief of discomfort due to gastric hyperacidity, the dose of NULACIN is one or two tablets between meals.

NULACIN tablets are not advertised to the public and have no B.P. equivalent. May be prescribed on E.C.10. The dispensing unit of 25 tablets is free of purchase tax. (Price to pharmacists . . . 2/-). Also available in tubes of 12.

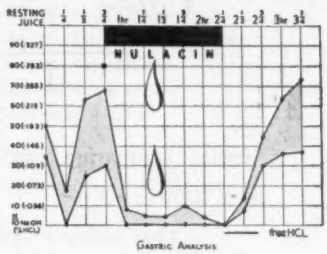
NULACIN tablets are prepared from whole milk combined with dextrins and maltose, and incorporate:

Magnesium Trisilicate 3.5 grs.
Magnesium Oxide 2.0 grs.
Calcium Carbonate 2.0 grs.
Magnesium Carbonate 0.5 grs.
Ol. Menth. Pip. q.s.





Superimposed gruel fractional test-meal curves of five cases of duodenal ulcer.



Same patients as in Fig. 1, two days later, showing the striking neutralizing effect of sucking Nulacin tablets (3 an hour). Note the return of acidity when Nulacin is discontinued.

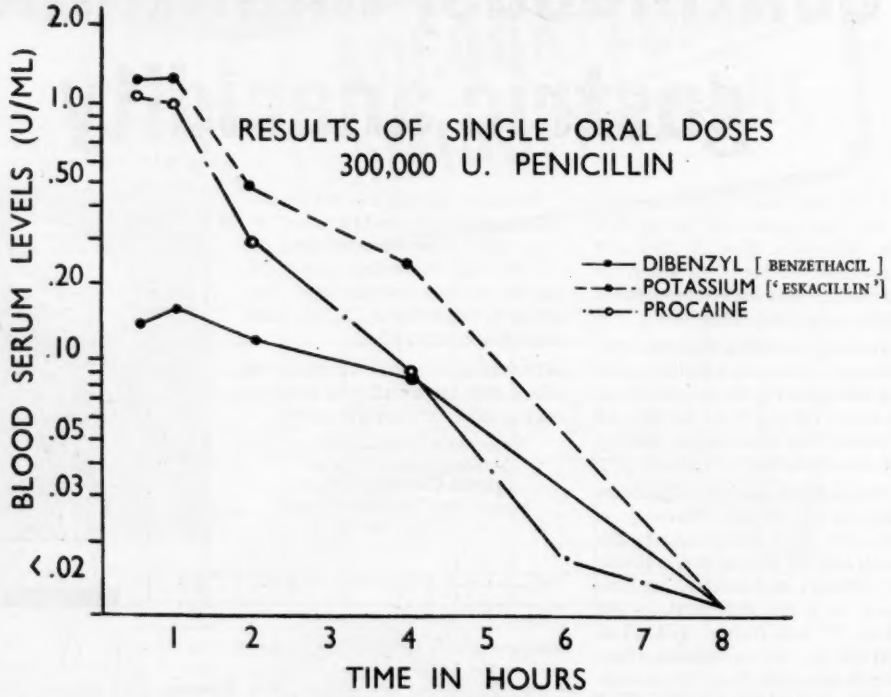
REFERENCES: British Medical Journal, 180-182, 26*th July*, 1952
Medical Press, 195-199, 27*th February*, 1952

NULACIN

HORLICKS LIMITED

***Pharmaceutical Division*, Slough, Bucks**

'The peak serum concentrations are significantly higher . . .'



Studies comparing orally administered potassium penicillin G and benzethacil have shown —

that *potassium penicillin G gives higher peak serum concentrations and equally sustained therapeutic levels.*[1]

that, *from the point of view of absorption, potassium penicillin G is the more reliable.*[2]

50 'ESKACILLIN' 100

A PALATABLE SOLUTION OF POTASSIUM PENICILLIN G
THE IDEAL ORAL PENICILLIN FOR ALL AGES

1 *Antibiot. Chemother.* (1953), **3**, 593-9. 2 *J. Lab. clin. Med.* (1953), **42**, 417-29.

For cost to N.H.S., please see M & J list of costs dated October 1953

MENLEY & JAMES, LIMITED, COLDHARBOUR LANE, LONDON, S.E.5

for Smith Kline & French International Co., owner of the trade mark 'Eskacillin'

ECP14

Bloodless revolution

The introduction of 'Dextraven' has made available for the first time a dextran solution with controlled optimal molecular content which has been referred to as "narrow fraction dextran." It produces rapid elevation and prolonged maintenance of blood volume and normally ensures that over 50% of the dextran administered remains in the circulation after 24 hours — a longer period than has been possible with any previous blood volume restorer. 'Dextraven' is the preparation of choice for the restoration of blood volume. The British Encyclopædia of Medical Practice (Medical Progress, 1952) states —"There is little doubt that the narrow fraction dextran will revolutionise supportive therapy and may be regarded as one of the major advances of the year."—Truly a bloodless revolution.

Dextraven TRADE MARK

Developed by **research** *at*

Benger Laboratories

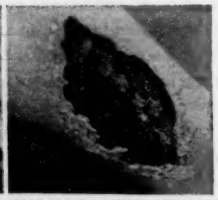
BENGER LABORATORIES LIMITED · HOLMES CHAPEL · CHESHIRE · ENGLAND

17

SKIN INFECTIONS *(Chloromycetin Cream 1%)* For topical application in skin infections, Chloromycetin is available in a water miscible base. **In tubes of 1 ounce (approx.)**

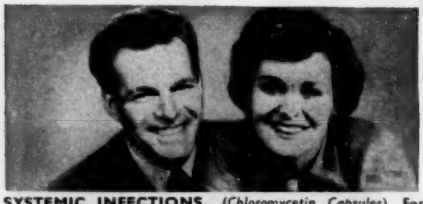
EYE INFECTIONS. *(Chloromycetin Ophthalmic and Ophthalmic Ointment)* For local treatment of ocular infections: Chloromycetin 1% Ophthalmic Ointment and Chloromycetin Ophthalmic, a buffered dry powder for the preparation of ophthalmic solutions. **Ointment: ½oz. tubes. Ophthalmic: 15 c.c. vials.**

EAR INFECTIONS *(Chloromycetin Topical)* For local antibiotic therapy of ear infections, a 10% solution of chloromycetin. **In dropper vials (5 c.c.) and bottles (100 c.c.)**



WOUND INFECTIONS *(Chloromycetin Topical)* Applied daily in wicks or gauze packs, or by irrigation. **In dropper vials (5 c.c.) and bottles (100 c.c.)**

SYSTEMIC INFECTIONS. *(Suspension Chloromycetin Palmitate)* For Children or those unable to take capsules. A pleasantly flavoured suspension, containing in 8 c.c. the equivalent of a capsule. **In bottles of 60 c.c.**



SYSTEMIC INFECTIONS. *(Chloromycetin Capsules)* For normal internal administration Chloromycetin is supplied in capsules of 0.25g. **In bottles of 12, 100 & 1,000.**

flexibility...

a feature of

CHLOROMYCETIN

treatment

Truly efficient and economic antibiotic therapy is possible only if there is a sufficiently wide range of preparations to meet varying clinical conditions. The Chloromycetin preparations now available permit individual adjustment of treatment in cases of every type and of every age and condition. Easy to administer or apply, effective in use, they cover the needs of both patient and prescriber.

PARKE, DAVIS & COMPANY LIMITED (Inc. U.S.A.)
HOUNSLOW, MIDDLESEX Telephone: Hounslow 2361

431

All the family benefits from CASILAN

Diets poor in protein actually hasten the ageing process, and those old people who subsist largely on tea-and-toast diets are among the first to succumb to exhaustion and illness. Casilan is therefore a valuable 'extra' for the aged—one that will do much to restore their vitality.

Diets protein-enriched with Casilan can cut the convalescent period appreciably—important when the family breadwinner is involved, or when hospitals are short of beds. The low sodium content of Casilan (less than 0·1 per cent) also makes it eminently suitable for oedematous cases needing high protein, 'salt-free' diets.

If obesity is the problem, Casilan can be relied upon to provide a sustaining yet *non-fattening* basis for reducing diets. And Casilan is a logical 'extra' to the expectant mother's diet; it helps to keep her own tissues in good repair, and assists the tissue development of the foetus.

Infants and children have real need of ample protein if regular, healthy growth is to take place. Casilan completely meets this need, because it is first-class protein and therefore extremely rich in the 'formative' nourishment so necessary for healthy tissue growth.

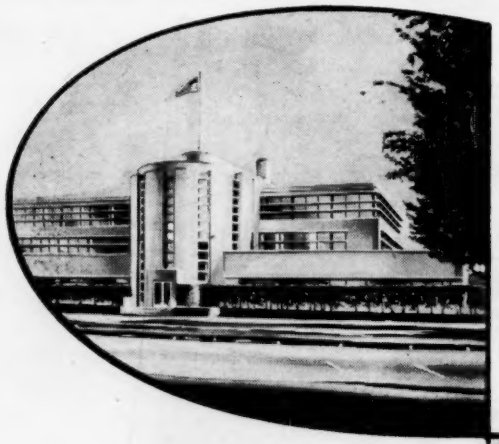
CASILAN

Trade mark

Whole protein . . . wholly acceptable

In 8 oz. and 40 oz. containers; also in 8 lb. tins for hospital use.

GLAXO LABORATORIES LTD., GREENFORD, MIDDLESEX BYRon 3434



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SEARLE

Research Laboratories

to Doctors in Great Britain

come

SEARLE

Floraquin*

TABLETS and POWDER

brand of di-iodohydroxyquinoline compound

A comprehensive restorative treatment for Vaginal Leucorrhoea and Vaginitis

The two fundamental aims of 'Floraquin' are to acidify the vagina and to eradicate all offending organisms. A skilful combination of the potent protozoacide Diodoquin* with lactose, dextrose, and boric acid, 'Floraquin' not only destroys pathogenic organisms but brings the pH to the desirable level of between 3.8 and 4.4 and encourages the growth of a normal protective flora.

'Floraquin' therapy consists of insertion of two moistened 'Floraquin' vaginal tablets high in the vaginal vault night and morning, supplemented by 'Floraquin' powder insufflation twice or thrice weekly; treatment being continued through the menses. 'Floraquin' Powder is supplied in 1 oz. bottles (2.15 gm. Diodoquin* per ounce); 'Floraquin' Tablets in boxes of 24 (each tablet containing 100 mg. Diodoquin*).

**Diodoquin* (Searle) is a non-toxic, insoluble, highly protozoacidal di-iodide of hydroxyquinoline.*

Literature on request.

*TRADE MARK

SEARLE

Ethical Pharmaceuticals since 1888

G.D. SEARLE & CO., LTD.

17, Manchester Street
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Tromexan

BRAND

ETHYL BISCOUMACETATE B.P.

for

GREATER SAFETY

in the prophylaxis

and treatment

of thrombosis . . .

Whether treatment is prophylactic or therapeutic Tromexan is rapidly effective. The promptness of its elimination minimises the danger of accidental hæmorrhage and thus Tromexan provides anticoagulant therapy with a wide margin of safety.

AVAILABILITY:

300 mg. scored tablets in containers of 10, 100 and 500 tablets; 50 mg. sugar-coated tablets in bottles of 100, 500 and 1,000.

Prescribable on N.H.S. Form E.C. 10.
Literature and samples on request from

indications:

RETINAL THROMBOSIS

CORONARY THROMBOSIS

CONGESTIVE HEART FAILURE (selected cases)

PULMONARY EMBOLISM

MESENTERIC THROMBOSIS

PELVIC VEIN THROMBOSIS

THROMBOPHLEBITIS

ENDARTERITIS OBLITERANS

PHLEBOTHROMBOSIS

TRAUMA (selected cases)

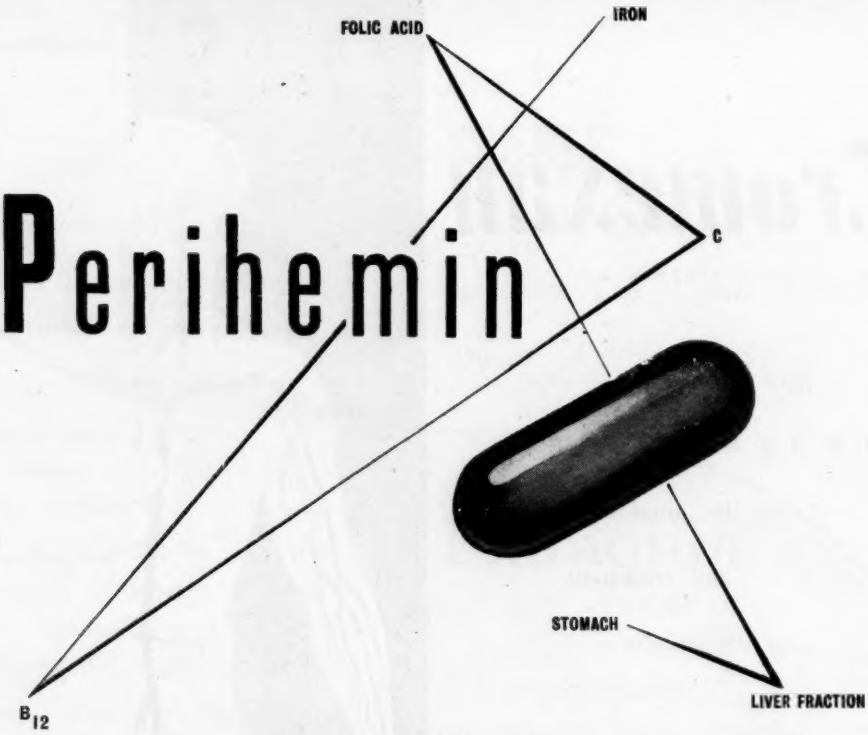
Geigy

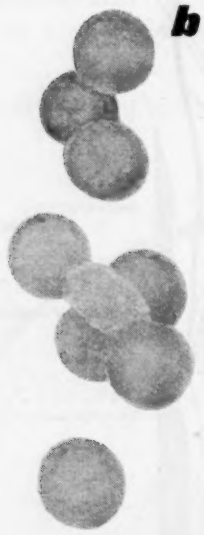
PHARMACEUTICAL LABORATORIES GEIGY LTD.
Rhodes, Middleton, MANCHESTER

PH. 59

21

Perihemin





builds red cells

Perihemin* is a concentrated preparation which combines, in capsule form, therapeutic amounts of the principal known haematopoietic substances. It is a powerful haematinic for the treatment of the common types of anaemia met with in everyday practice. The capsules provide maximum toleration and optimal dosage for the patient.

FORMULA Each capsule contains: Ferrous sulphate exsiccated 192 mg., Vitamin B_{12} 10 micrograms, FOLVITE* Folic acid 0.85 mg., Ascorbic acid (C) 50 mg., Powdered stomach 100 mg., Insoluble liver fraction 350 mg.

PACKINGS Presented in bottles of 100 and 1,000 capsules.

**Trade mark*

LOOK TO Lederle FOR LEADERSHIP

LEDERLE LABORATORIES DIVISION

Cyanamid Products Ltd.

BUSH HOUSE • ALDWYCH • LONDON W.C.2 • TEMPLE BAR 5411

ALFICETYN PRODUCTS

Containing British-made Chloramphenicol

Simplify the treatment

ALFICETYN CAPSULES. For oral administration. Available in bottles of 12 capsules each containing 0.25 gramme Chloramphenicol B.P.

ALFICETYN EAR DROPS. Containing a 10% solution of Chloramphenicol B.P. in vials of 5 c.c. with a suitable dropper applicator.

ALFICETYN DUSTING POWDER. Providing 5% Chloramphenicol B.P. in a sterilised, free-flowing diluent. Supplied in sprinkler-topped vials of 5 grammes.

ALFICETYN

Trade Mark

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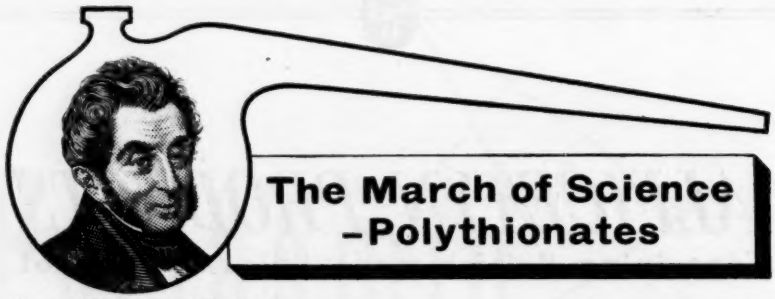


The March of Science –Polythionates

Heinrich Wilhelm Ferdinand Wackenroder
1798-1854

The chemistry of polythionates, intimately connected with that of colloidal sulphur, goes back to the beginning of the nineteenth century when J. Dalton, the Manchester philosopher, investigated the reaction of hydrogen sulphide and sulphur dioxide in aqueous solution.

A considerable advance was made by Heinrich Wilhelm Ferdinand Wackenroder, a professor of pharmacy in the University of Jena at a time when inorganic chemistry was little more than the handmaid of medicine and the arts.

In 1846 he first showed how to produce a solution containing what we now know as polythionic acids, but free from colloidal sulphur. Since that time "Wackenroder's solution" has fascinated and bewildered succeeding generations of chemists by the complexity and variability of its composition—but also by its instability.

The necessity for the therapeutic evaluation of the polythionates followed the discovery that bactericidal and fungicidal effects, formerly attributed to elemental sulphur, were, in fact, a property of the polythionates; but stability in solution has, until now, proved the stumbling-block for research workers.

The difficulty has at last been overcome and now, for the first time in this country, we present, in "Dermasulf" a completely stable polythionate of known composition.

Medically and cosmetically entirely acceptable, Dermasulf is composed of complex polythionic acids; $H_2S_xO_6$(x is principally 4 or 5) and their salts. It is available as a 3½% solution. The polythionate content as tetra- and penta-thionate, of the 3½% solution is equivalent to 1½% elemental sulphur. The pH is approximately 3.4.

Dermasulf is available in 2 oz. bottles. A specimen and full literature will gladly be sent on request.

DERMASULF

A completely acceptable, stable solution of polythionates for the treatment of all dermatological conditions.

THE CROOKES LABORATORIES LIMITED · PARK ROYAL · LONDON N·W·10

For suppression of severe cough

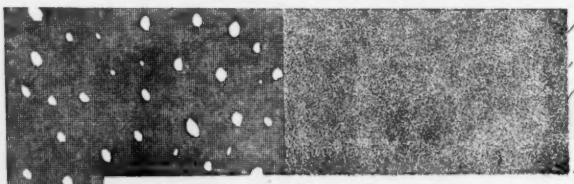
'Physeptone' depresses the cough reflex in a manner comparable with that of diamorphine. It may therefore be prescribed with advantage for those cases of persistent cough which would normally be given diamorphine.

For this purpose, 'Physeptone' Linctus is issued containing 2 mgm. of Methadone (Amidone) Hydrochloride in each fluid drachm. The average adult dose is one teaspoonful (2 mgm.) every three or four hours, and this will control nearly every cough.

For children 'Physeptone' Linctus should be diluted with simple syrup in the proportion of one part linctus and seven parts syrup. One to two teaspoonfuls (0·25 - 0·5 mgm.) of this *diluted* linctus to be given according to the age of the child.

'PHYSEPTONE' LINCTUS

BURROUGHS WELLCOME & CO. *(The Wellcome Foundation Ltd.)* LONDON



'PERNIVIT' for chilblains

Pernivit has proved to be remarkably effective both in treatment and in the subsequent prevention of chilblains. It utilises the vasodilator properties of nicotinic acid and the effect of vitamin K in maintaining normal blood coagulability and vascular permeability. Irritation and inflammation are quickly relieved.

Dosage is from two to six tablets daily according to the severity of the case. The basic N.H.S. price of Pernivit is 2/- (Bottle of 50 tablets). Literature and specimen packings are available on request.

May be prescribed on form E.C.10.

THE BRITISH DRUG HOUSES LTD (Medical Department) LONDON N.I

PRVT/E/151

ON CREDULITY*

LORD MORAN
M.C., M.D., F.R.C.P.

A FAMOUS advocate once confessed to me: "When I get up to speak in the law-courts, it is without a qualm; but I never rise to address the House of Commons without a feeling that it is a mill-stream running away from me." In a court of law he had the comfortable assurance that he would be able to do whatever was required, but in the critical atmosphere of the House of Commons he was less certain. That feeling of uncertainty is every speaker's bogy. Some of those who have delivered the Harveian Oration have owned to me that long before the fateful day they have been filled with misgivings. They feared perhaps that they would fall short of the high standard of other years; they were apprehensive because this was not a paper read before a medical society on some clinical subject to which they had given their days, but rather an excursion into the world of letters, where some reflections on life, even a few modest generalisations—as it were an *apologia pro vita sua*—were seemingly inevitable.

It is, therefore, in a mood of chastened humility that the Harveian Orator asks himself what were Harvey's intentions and how far he has been guided by the Founder's purpose; which he then unfolds in Harvey's own words. Perhaps I may be allowed to paraphrase them. Harvey apparently had in mind that some senior Fellow, in telling the College what he had seen and heard in his day, should think for himself—without of course being too provocative—and that his observations should be given to Fellows in proper form, as an oration in the Latin tongue. Harvey was right to stress the importance of form, but he seems to have forgotten that it is of the very nature of the orator's art to deal with what is familiar, and that an oration is not the proper occasion for an original thesis.

And that brings me to the limitations of the orator's art. They have been clearly set out by a forebear of mine, William Hazlitt, who told us what a speaker can do, and in particular what he cannot. For instance his first duty is to be immediately understood, and what all can understand must be easy to comprehend. There was therefore nothing new or profound in Chatham's famous speeches in 1770, nor was there in Winston Churchill's great speeches in 1940—nothing but what we already knew. When this country was threatened by invasion he had the same ideas about the war and England's danger as the common man, but he felt them a thousand times more clearly, more vividly. Churchill electrified his hearers, not by the novelty of his ideas, but by their force and intensity.

Hazlitt, when he wrote about oratory, was always firmly planted in the middle of the audience; were they attending, he kept asking. And our forebears had the same kindly feeling for those who had to listen. It is not possible to glance at the history of the College, even in a perfunctory manner, without being impressed by their zest for what they called an elegant Latin oration; by their understanding of all that the scholar brings into our lives; by their loving care for form.

I sometimes wonder if we have not lost this tact in speaking. We say our pieces, and the audience can listen or not as it cares; and if I were disposed to put a date to our fall from grace, it might be that dreadful day in October, 1864, when Robert Lee began the Harveian Oration in Latin, and had perforce to finish it in his own tongue. It may be that some Fellows listening in this building at that time had a feeling that the thread which for centuries had bound the College to the world of learning had snapped, like a harp-string.

In discussing the form and pattern of an oration, though I have only scratched the surface of the subject, I may perhaps have tried your patience. And yet I am quite unrepentant. For the form of our speeches is the expression of our inward grace, and when culture has gone from the leaders of our calling, we shall not long remain a profession.

War with Quacks

Harvey exhorted the Harveian Orator to commemorate benefactors of the College, but after four centuries that would mean an outline of our history. I must be content with a single chapter. I shall ask why the College came into existence, and whether it has justified the hopes of those who founded it. To answer that question I want to take you back to the London of 1518. Sir Thomas More had just written his *Utopia*, and Linacre, the friend of Erasmus, and one of the most learned men of the day, was cudgelling his wits how he could deliver Medicine out of the clutches of the Church. He was dreaming perhaps of a profession confined to scholars, and of the birth of the College as part of the revival of learning, part of the irrepressible desire of the Renaissance to dissipate ignorance. But Linacre, if he was a dreamer, was also a man of affairs. He wanted Henry VIII to found a College of Physicians and to give it a charter, in order to suppress the swarm of unlicensed practitioners and quacks who were infesting the towns and had become a menace to the country. That was the purpose for which the College was founded, and I shall therefore talk today about quacks and their extirpation.

The first record I can find of war with quacks and empiricks was in 1421, before the College was founded, when "an attempt was made to mitigate the evils resulting from the practice of physic by ignorant and unauthorised persons to the great harm and slaughter of many men, by restricting the privilege of practice to those who had graduated in physic at a University."[1] The petition of the physicians was presented to the King in that year, and he responded by giving power to the Lords of the King's Council to fix penalties for those who practised physic "not being skilled or approved in the same." It is, however, open to doubt if the power entrusted to their lordships was ever exercised.

In 1511 Parliament passed an Act for the appointment of physicians and surgeons. From this we learn:

> "Forasmuch as the science and cunning of Physic . . . is daily, within this realm, exercised by a great multitude of ignorant persons . . . who take upon them great cures and things of great difficulty, in the which they partly use sorcery and witchcraft . . . to the grievous hurt, damage and destruction of many of the King's liege people, most especially of them that cannot discern the uncunning from the cunning. Be it therefore . . . enacted That no person within the City of London, nor within seven miles of the same take upon him to exercise or occupy as a Physician or Surgeon except he be first examined, approved and admitted by the Bishop of London or by the Dean of St. Paul's. . . ."[2]

In the year 1518, by a charter of Henry VIII, this power was taken from the Church and given to the College of Physicians on its foundation. When the charter was confirmed by Act of Parliament, in 1522, this embargo was extended to the rest of England, so that with the exception of graduates of Oxford and Cambridge none could practise physic without the licence of the College. The College was allowed to inflict heavy fines on transgressors, and, when this failed to curb the activities of the quacks, Queen Mary gave the College permission to commit to prison any person who practised

* The Harveian Oration for 1952, delivered before the Royal College of Physicians on Oct. 17

1 Notes on the History of the Royal College of Physicians. (Unpublished.) p. 1.
2. *Ibid*, p. 3.

without the College licence. These were considerable powers to entrust to any institution. The College, however, made full use of them in its determination to set up standards where there had been none. For more than two centuries it waged relentless war with every kind of impostor, under every kind of difficulty, often in open defiance of the Court and of the most powerful personages in Church and State. This was a service to Medicine which has received scant recognition, particularly among the illiterate. It has been the fashion in certain quarters to make little of the College, to speak of it as effete, to hint that it has outlived its usefulness. I remember when Mr. Churchill took luncheon with the College he arrived before the hour. While we waited he told me that the Ministry of Health had briefed him for his speech. They had assured him that the profession had really no history before the Medical Act of 1858, apart from some activities for which the Society of Apothecaries, and not the College of Physicians, had been responsible. I could not have been more taken aback if he had affirmed that the history of English literature began with Alfred Harmsworth, Lord Northcliffe. I commend this unlearned person to *An Historical Account of the College's proceedings against Empiricks and unlicenced Practitioners, in every Prince's Reign, from their first Incorporation to the Murther of the Royal Martyr, King Charles the First*, by Charles Goodall, printed at the Bishops Head in St. Paul's Churchyard, in the year 1684.

If we open this book at random, we shall find evidence of the strength of the opposition to the plans of the College. Sir Francis Walsingham, secretary to Queen Elizabeth, sent in December, 1581, a letter to the president in favour of one Margaret Kennix, saying that:

> "... it was her Highness pleasure that the poor woman should be permitted quietly to practise by the means of certain Simples, in the applying whereof it seemeth God hath given her an especial knowledge. ... Forasmuch," he goes on, "as I am now informed, she is restrained either by you, or some other of your College, contrary to her Majesty's pleasure, to practise any longer her said manner of ministering of Simples as she hath done, Whereby her undoing is like to ensue. ... I shall therefore desire you forthwith to take order amongst yourselves for the readmitting of her into the quiet exercise of her small Talent, lest by the renewing of her complaint to her Majesty through your hard dealing towards her, you procure further inconvenience thereby to yourself than perhaps you would be willing should fall out ..."

When monarchs in Tudor times spoke of inconvenience to one of their subjects it was no longer possible to speak of that subject's life as a good life. Nevertheless the College stoutly responded, professing that they were most willing and content to abide by any inconvenience whatsoever which may ensue, rather than suffer this ignorant person to intrude into so great and dangerous a vocation.

Five years later we find the same Walsingham again active. This time on behalf of his own quack, from whom he had received much good. To which the College replied that this person had told them he treated only the Pox. Whereupon Sir Francis kept his silence and the quack fled into foreign parts. Ten years later, in 1591, in the reign of King James, the College examined one Dr. Saul. When addressed in the Latin tongue he stood mute and answered not one word. Nor did he prosper more in English, so that he was found to be "an illiterate and ignorant person in his profession." And from that time till now, the College said, we heard no more of this Saul. But when told that he had been made one of the Queen's physicians the President wrote to Lord Sidney that he did "not a little marvel how Saul cometh by this credit in physic."

In those years the College was not only concerned with the maintenance of standards, it did what it could to restrain the indiscriminate sale of poisons, beseeching her Majesty to command that arsenic, sublimate, and opium should be sold to only those persons willing to give their names, and that no apothecary should sell or prescribe medicine without a physician's prescription.

That one man (I have in mind John Caius) should take a fearless line is hardly surprising. That his successors for two centuries should be as tenacious of their rights, provides a coloured page in the annals of the College. It was not easy. To the assistance of a dangerous impostor like George Butler came in turn the King, whose servant he was, the Archbishop of Canterbury, who gave him a special licence to practise, the Lord Chief Justice, and the Lord Chancellor, before he was finally committed to prison. The College "No" to all this importunity was firm enough, but it was pronounced with the softest accent. The President would end his reply "and so praying for your lordships' most proper estate we most humbly take our leave." It must have been impossible to take exception to this manner of address, particularly as the facts were so damaging. Moreover, the College had taken care to set its own house in order and had decreed that no-one should be elected a Fellow until he had spent at least seven years in study in an English university. So we find the Tudor and Stuart kings bestowing signal marks of their favour on the College. They were plainly satisfied that in its vigorous prosecution of the war with quacks it was serving the public interest.

There are of course black spots on these splendid pages of the *Annals*. The College, to be sure, was not entirely disinterested in its crusade against quacks; it made a good income out of the fines, paying only £5 a year to the Crown. And once at least we find a censor exchanging the licence to practice for a sum of money. While the boisterous vigour of the time did not always temper justice with mercy. Dr. Alexander Leighton, a doctor of Leyden University, who persisted in practising without a licence from the College, was arrested and afterwards censured in the Star Chamber, tamquam infamis, and lost his ears for his persistence.

An Unequal Contest

In the battle for standards the English universities were non-combatants. They denied degrees to few or none, wrote Dr. James Primrose in 1651, so that the president had to insist that no doctor of Oxford or Cambridge should be allowed to practise until re-examined by the College. This facility in obtaining medical degrees at the universities continued during the 17th and 18th centuries. The College, for its part, had little patience with the apathy and drift of the universities; it was shocked by their indifference to academic standards. And in John Caius it found a president who could speak its mind. He had found chaos in College affairs and he brought order and authority. Then he turned his thoughts to the war with quacks, which was to dominate College policy for two hundred years after his death. In 1556 he felt strong enough to reprove the University of Oxford because it had conferred a degree on one David Lawton, a coppersmith, who had been examined and rejected by the College three years before. The terms in which Caius reproved the university were in no way equivocal:

> "Because of the safety of the State we admonish you when you have conferred a degree on a man without the colour or taste of philosophy, a man far too unlearned, far too ignorant, whose answers fell below the mediocrity of a child, one with nothing to recommend him but blind audacity. This is a blot upon your University which has become the refuge for these dregs of men. And this you have done without regard to the health of our dear country."

Oxford showed fight, but the Visitor took the side of the College, and Oxford lost the day. Then Caius

turned his attention to Cambridge, which had also conferred a degree on an unlettered person, and once more he had his way.

However the trouble was not so much that the College was alone in the fight, but rather that it was at war with human nature. And here, if you will let me, we will pause for a moment and ponder on human credulity. There have been many David Lawtons in medicine since that time, for there has always been a market for quacks, who have been supported by the King downwards throughout recorded history. A statement of that kind ought, I think, to be fortified by some facts. A long time since, I wrote a paper on the ill-treatment of Princes, though I did not venture to publish it. I had no difficulty in collecting many instances where the monarch of the day was gently pushed into the next world by his own doctor. I have never been able to make out whether it was because monarchs would choose the wrong doctors, or because the right doctors could not function in the glare and publicity that surrounded the throne. Moreover such credulity was not confined to monarchs, it was common among their Ministers. Queen Victoria, who was devoted to Disraeli, became distracted when she realised he was seriously ill, and that anything might happen. She asked the President of the College to meet Disraeli's doctor. But when the President learnt that he was a homœopath, he obstinately refused to meet him. In those days men knew their own minds. At this point you may say: "Ah, but Disraeli was a politician, a man of science would never be so foolish." I have to tell you that probably the greatest scientist since Newton was in the habit of going to his butcher for massage; he had a hernia, and when it became strangulated, he continued to go to the butcher for massage; until forty-eight hours later, when it was blue and gangrenous, he decided to call in a surgeon—but it was too late.

Because there is in most of us something of the quack, the results of this unending war have been, on the whole, disappointing. The College was trying to change human nature—and anyone who sets out on such a mission is not likely to suffer from unemployment. We can all smile in a superior way when we read *The Golden Bough*. Human credulity, we reflect, is an absorbing study. It gets entangled in the mind like bindweed. And then we come out with our own particular brand of black magic. A war with quacks was a war with human nature. The College did it best. By fines and imprisonment, by hounding up every imposter who was cheating the public, it went on waging war against the empiricks. We wonder at the tremendous zeal and verve of the crusade; we are sure that in the end the quacks will have to give up the fight. Well, four centuries and more have gone since war was declared, and there are still plenty of them living in prosperity and basking in the sun.

Is there a Cure for Credulity?

It may be that all this energy was misguided; that the College showed more aptitude for repressive measures than for digging down to the roots of the trouble. Certainly no-one appears to have given much thought to the task of undermining the hold of the quacks on the public mind. After all, why did people go to quacks? It was not reason that took them, for the College case was unanswerable: it was simply this—that if a man was going to practise as a doctor he ought to be trained as such. People went to a quack because in their eyes his prestige was greater than any doctor's; others might call him an impostor, but the fact remained they felt safer in his hands. He did things. And they were impressed. One of two things then: either his prestige must be destroyed, or the repute of the doctor must be raised. For four centuries the College had been so busy taking away the reputation of the quack that it had neglected to build up the prestige of the doctor—perhaps in the process of educating the public it was easier to destroy than to create.

EDUCATION OF THE PUBLIC

Let me be fair: from time to time more enlightened counsels prevailed. More than one president tried to get into the heads of the public what a good doctor could do, and what was the real nature of true professional success. They set out in particular to wean their patients, and often the profession, from a pathetic belief in doctors who do things, for instance in the giving of a bottle of medicine. For nine years I worked every day beneath the portrait of William Pitcairn, and when I was tired of my work I would look up and wonder why he had been for fifty years so successful in practice, since he had no great faith in drugs. Why should I wonder? Because when we are ill, we all like a doctor who does things. Once when Pitcairn had occasion to visit a lady ill with consumption, he took with him a young friend, recently graduated, who expressed surprise when Pitcairn prescribed nothing more than infusion of roses, with a little mineral acid. Pitcairn turned to the youth:

> "The last thing a physician learns in the course of his experience is to know when to do nothing, but quietly to wait and allow Nature and time to have fair play in checking the progress of the disease, and gradually restoring the strength and health of the patient."

And if the profession is so slow in learning this lesson, how can you expect the secular mind to be more sceptical? The layman on a bed of sickness yearns for action. A certain patient of mine complained: "Charles, you are so desperately negative"; and on another occasion he followed this up: "Charles here does not believe in medicines, but he thinks it only decent to put a label on before the end." I can see his face brighten as he welcomes action—he always wants something done. It is difficult to resist such importunity; only the elect refuse to compromise. And in that connection I recall it was said of Matthew Baillie that his knowledge of morbid anatomy enabled him to do without a bedside manner. To him it was the reward of knowing his job that he could say, "I don't know."

There was even one president who tried to convince the public that a popular doctor is not necessarily a good doctor. Why should he be, since his good name is no more than a crown placed on his head by the vulgar and uninformed? But it does not follow that a doctor is necessarily incompetent because he is popular. For what is at the root of popularity in the physician's case? I should answer that the popular doctor is nearly always a sound psychologist. For I do not suppose that the recipe for success varies much over the centuries. I would go further: Radcliffe, I imagine, was an 18th-century version of Lord Dawson. Both no doubt owed something to their profound knowledge of human nature, their gift for reading men's minds. And incidentally, that gift has taken greater men into greater places. It took Franklin Roosevelt to the White House and kept him there until his death. It may well be that Dawson was wanting in the scientific habit of mind; it is certain that he was not given at birth the discerning eye of Wilfred Trotter or Thomas Barlow. But there was a touch of genius in the way he read the minds of men. And in our care to make medicine a science, let us never forget that it is also an art. We have all of us known youthful members of our profession who, on the strength of a little science, have made a mockery of the inhabitants of Harley and Wimpole Streets, saying that they grew fat on the credulity of the public. They have allowed to grow up in their minds a false antithesis between the science and the art of Medicine. Both are necessary. Though most of us, if we were honest,

would have to admit that we are more at home in one or the other. Few, like Maynard Keynes, have won the regard of both worlds, and bask in the approval of the artist and the scientist. Those who are not so fortunate would do well to preserve a sense of humour, and refrain from criticising the great body of the profession, because they practise an art for which they have been trained.

It is of course disappointing that so little has come of all these efforts to educate the public. Surely to teach people to suspect and reject humbug and all its ways should not be difficult, at any rate where education has had its chance. Alas, it is precisely in that section of society where the educational discipline has been most intensive and drawn out that superstitions, like weeds, flourish most rankly.

Not long ago I was lunching in the country with half a dozen men, two of whom (my host and another whom I shall call Lord Janet) are dominating figures in the world of affairs. Presently Lord Janet, perhaps stimulated by my presence, said across the table: "When I was 46 I began to get headaches which lasted sometimes as long as three weeks; they were so severe that I was left prostrate. I saw all kinds of specialists, but I got no better. Then in despair I was persuaded by a friend to see an osteopath. I went without faith. He said to me: 'Get up here,' indicating an elaborate surgical table, 'now put your head under my arm like this'—he was a big fellow, perhaps six foot three. Then he began turning my head this way and that, with great rapidity. 'I am breaking down adhesions,' he said. Finally he gave a terrific wrench, there was a loud click—I thought he had broken my neck. But I've never had a headache since." He looked at me in a challenging manner. My host leaned forward eagerly: "Now Charles, I call that a very remarkable story. You really ought to put aside your prejudices and go into it."

It happened that the same Lord Janet came to me in distress about a month since because all at once he had been afflicted with giddiness. It had become so severe that during the past week he could only shave if he held on to the basin with his other hand. Twice he had nearly fallen. He wondered if he had had a stroke. He feared he would have to give up his work. When I examined him and found no cause for his giddiness I took him to an aural surgeon, in whose judgment I had confidence. At the end of his tests he said: "I am not sure what is the explanation of your giddiness, but if it is in your ears—if it is, as we say, vestibular—then it will probably respond to a sedative, as sea-sickness does, and for the same reason." Lord Janet was not at all impressed by the provisional nature of this verdict, nor by the halting fashion in which it was delivered. But he was persuaded to go to a chemist with the prescription, and when he had taken a few doses he had no more giddiness. When, however, I saw him later, he said: "It just went of itself."

The sceptical, doubting, ear specialist, who said the vertigo might be due to his ears and again it might not, who affirmed he could only tell by trial, had failed to impress the man who for years had gone about singing the praises of his osteopath, who had so miraculously cured his headaches.

The moral of my story is that no degree of intelligence, no amount of education, is proof against human gullibility. Those who are concerned with the government of a democracy find unlimited opportunities in the suggestibility of the average mind. Napoleon spoke with contempt of what men would do for a bit of ribbon. Disraeli, following the same line of thought, said drily: "With words we govern men."

EDUCATION OF THE PROFESSION

I do not wish to labour the credulity of the public, for I am not sure that a superior pose is altogether in keeping with the facts. The mental attitude of the quack is, in truth, not entirely unknown among doctors. Perhaps, instead of spending so much time and effort in trying to instruct the public, it might have been better to begin by educating the profession, by purging the practice of medicine of those elements of humbug which have excited the ridicule of every satirist from Molière to Shaw. How can this be done? Not, I think, by preaching. The doctor resorts to humbug in order to impress the patient, he will cut the cackle when he no longer needs it. We could help him by making him feel independent of humbug, by giving him other ways of impressing the patient. I should, however, feel more hopeful about this line of approach if the physician had not been so fully armed for the last twenty-five years. When I began Medicine, students often preferred dressing in the surgical ward to medical clerking. I was puzzled about this because they seemed to spend most of their time wheeling trolleys to the operating-theatre, or sitting with a patient until he recovered consciousness after an anæsthetic, or changing bandages. But they would retort that the physician did nothing for his patient. That at any rate is no longer true.

No, the real remedy is not to pile up ways of impressing the patient, but to ensure that it is no longer so necessary to win his approval. In short, to depose the patient as the final arbiter of the doctor's fate. In my time two steps have helped to build up the physician's independence, though in the first instance neither was designed for that purpose.

In 1913 a Royal Commission was set up to investigate university education in London. It differed from most Royal Commissions in what I may call the mental horsepower of some of the members. Morant, Milner, and Haldane never allowed detail to obscure the fundamental purpose which they had in view. After two years they produced a remarkable report—the most important medical document of my time—which, when we are gone, will be read as the first step in the change from private practice to what we call a whole-time service. The Commission found that the inhabitants of Harley Street and Wimpole Street had been so taken up with their private practices that they had neglected to add to knowledge. The pursuit of learning had been handicapped by the pursuit of gain. It advocated as the only effective remedy that steps should forthwith be taken to provide an academic career in Medicine, open to men who wished to devote their lives to teaching and research. Their success in life would be measured not by the number of patients attracted by their personality, but by their reputation as scientific physicians and surgeons in their own profession. It was a step forward towards the light. And yet the introduction of what were then called clinical units was greeted by active hostility on the part of the profession, led by Sir Bertrand Dawson; and I recall the cold blast of disapproval that blew out the little candle which Sir Wilmot Herringham and I had lit and placed on the lonely shrine of those early professors.

And yet what was remarkable was that this had not happened a long time before. For when I read the history of the College, and learn how time and again the choicest spirits of their age frittered away their time in general practice, how even Harvey himself rode on his horse over the countryside, quieting the fears of old women, who then as now were probably preoccupied with their colons and their humours, I cannot help wondering what would have been the effect on the status of our profession if, when Henry gave the College a charter, he had also endowed it, as he endowed Trinity College, Cambridge. Should we have had to wait four centuries to find an academic career in Medicine? And would the profession of Medicine itself have enjoyed a different status in the eyes of the public if its loyalties had not been divided?

The second step I had in mind, because it tended to make a physician independent of his patient's favour, was the introduction of the system of merit awards. A physician's advancement and the enlargement of his fortunes will in the future depend less and less on the patient's caprice, and more and more on the verdict of his peers, his fellow physicians.

The College Achievement

You may expect me, before I end, to pass a verdict, however provisional, on our College. Has it justified its existence? Dr. Sidney Phillips, when treasurer, once said that he doubted whether the history of the College would ever be written; it would give too devastating a picture of human frailty. That is not the impression which is left in my mind by reading its *Annals*. True, it is a very human document, the unexpurgated story of a few men who were given absolute power over the College, and in a measure over the profession. In these circumstances it would be unrealistic to expect the president and the censors always to be sweetly reasonable. As a matter of fact they were often far from reasonable, and the pages of our history are lit up by flashes of arbitrary temper. Indeed some of the leaves in that chronicle might have been headed: "Into Battle." For instance, the war with the Royal Society; the illiberal wrangling with licentiates; the contemptuous attitude to the apothecaries, fostered by the power given to the College to inspect their shops at any time, and to burn whatever drugs met with their disapproval; the arrogant assumption that surgeons were not competent to give internal remedies to their patients, that a physician must be called in whenever they wished to give a draught for the relief of pain after an operation.

And with this arbitrary temper went a rather parochial spirit, which often crept into and disfigured the administration of the College. I am thinking of the restriction of the Fellowship to graduates of Oxford and Cambridge, and of the limiting of numbers for the Fellowship to thirty Fellows, sometimes less. It is sad to see the College stunting its growth in this fashion, so that at times it might have been called a College of "some" physicians.

It was probably this narrow outlook, coupled on occasion with a rather aggressive exercise of power by the College, which led to the Medical Act of 1858, an Act that deprived the College of executive powers. And then, within the memory of Fellows still with us, the pendulum swung to the other extreme. Presidents were elected in the twilight of their long day, when all vigour had gone from their minds, so that the College was allowed to drift and took no part in the formation of the Association of Physicians, and by default permitted the journals associated with their art—*Brain*, *Heart*, and the like, to be published by other bodies. All these things we must give to our critics. And still we have to answer the gravest charge of all—namely, what the College had left undone in the field of education.

The College began well. The 16th century in medical education is the era of descriptive anatomy, of Vesalius, Eustachius, and Fallopius. That England took a notable part in this accurate labelling of human tissues was due to the College and to no-one else. From Caius to the Hunters its contributions were such that the names of Caius, Harvey, Glisson, Mead, Willis, William Hunter, and Matthew Baillie are still familiar to the medical student. Regular lectures were given at the College as early as 1509, but what impresses me more is that the lecturer was provided with two bodies for anatomical research, at the College's expense. And the same enlightened spirit animated the presidents when they came to the assistance of the surgeons. By the end of the 16th century surgery had come into great contempt, and the College, anxious to restore surgery to her perfection, founded a lectureship in surgery, decreeing that before the lecturer took up his duties he should be required to travel for two years into France, Germany, and Italy, for his further and better knowledge of surgery, the College making itself responsible for the lecturer's maintenance abroad.

And so at the close of the 16th century we find that each foramen and every ganglion had a name; without a microscope nothing more could be done, but at the same time there was hopeless confusion as to the functions of the organs which had been so faithfully described. Physiological science lagged behind, and Harvey found it in this poor condition. By using every method of biological research, by direct observation, by measurement, by experiment with living animals, above all by comparative anatomy, Harvey laid the foundations of scientific medicine and became the father of physiology. He ascribed his discovery of the circulation of the blood to the fact that he had dissected eighty animals, and recorded his faith in comparative anatomy in words of Aristotle which we find at the head of Harvey's lectures: "The organs of human beings are less known to us than others: so that we must examine them by reference to those organs of other animals to which their nature is similar." It was, then, from the College walls that the medical art was first planned on scientific laws. An entry in the first volume of the *Annals* makes it clear that as early as 1569 regular lectures on anatomy and demonstrations on the dead body were given at the College.

After Harvey's time the College's interest in medical education was spasmodic. We must of course recognise that without beds it was handicapped in teaching an art like medicine, which depends upon observation. Nevertheless when every allowance has been made the fact remains that the teaching of medicine in England up to the 19th century brought credit to no-one, and for this the College cannot be entirely acquitted of blame. The scholar is apt to shy at the drudgery of routine instruction, and the presidents were perhaps too ready to agree with Gibbon that the only people we can teach are those who do not need it; that the most that can be done is to bring young people into contact with what is first-rate. The Greeks had a saying—and the presidents, with odd exceptions, were classical scholars—that a doctor has opportunities of studying human nature which are given to no-one else, and therefore a philosopher should begin life as a doctor, and a doctor should end his life as a philosopher. It is a good creed, which was perhaps sometimes overdone. There are, of course, plenty of little black smudges on these splendid pages which are at once the chronicle of our College and the history of English medicine for more than three centuries, but they will not distract the discerning reader from following the outline of the central achievement of the College in those years.

When we read that Linacre delivered Medicine out of the clutches of the Church, hardly a ripple stirs the surface of our feelings, because we have lost the sense of mystery and awe which the Roman Church inspired in the Middle Ages. We catch only a faint echo of the surge and thunder of that tremendous institution with its immeasurable power and influence and prestige.

> "There is not and there never was on this earth a work of human policy so well deserving of examination as the Roman Catholic Church. The history of that Church joins together the two great ages of human civilisation. No other institution is left standing which carries the mind back to the times when the smoke of sacrifice rose from the Pantheon, and when camelopards and tigers bounded in the Flavian amphitheatre."

Perhaps Macaulay's words may help us to measure the magnitude of Linacre's task, and the nature of his triumph, when almost single-handed he rescued Medicine from the grip of the Church.

I need not warn Fellows that in any historical survey it is possible, by a process of selection of the evidence, to prove almost anything. I can remember a debate between Sir Almroth Wright and Mr. Bernard Shaw on women's suffrage. When Shaw sat down one felt sorry for Wright. He had been mauled so unmercifully. But when Wright in turn resumed his seat one said to oneself that after all Shaw was a guest. They were so devastating

in debate because of their skill in selection; every sentence was a direct hit. Twenty-five years later I listened to the same speakers. They had lost their power of selection. They would take some small point which was of no interest to the audience, and of little relevance to the argument, and tear it ill-temperedly to pieces. Nevertheless, when every allowance has been made for change of perspective by a process of picking and choosing, it can be said that for more than two centuries after Linacre's death, the College waged a lonely war for professional standards with little help from the profession, and none from the universities. So that we can claim that in the 16th, 17th, and 18th centuries the College alone and unaided prevented Medicine from degenerating into a trade. That claim has its roots in historical fact. It is time that it was made, if only for the instruction of the ignorant and the illiterate.

POSTOPERATIVE WATER RETENTION
WITH REPORT OF A CASE OF WATER INTOXICATION

L. P. LE QUESNE
M.A., B.M. Oxfd, F.R.C.S.
ASSISTANT DIRECTOR, DEPARTMENT OF SURGICAL STUDIES, MIDDLESEX HOSPITAL, LONDON

IN a previous communication (LeQuesne and Lewis 1953) the postoperative disturbance of salt and water metabolism was shown to consist in three separable phenomena, which were named primary water retention, early sodium retention, and late sodium retention. Although a large intake of hypotonic fluid was ensured, all the patients observed passed small volumes of concentrated urine in the immediate postoperative period; and, with the intake provided, this led to water retention, with weight gains and extracellular hypotonicity. This primary water retention took place whether or not sodium was given. In most of the cases then reported the oliguria with raised specific gravity lasted only 24 hours. However, in two of the cases the specific gravity of the 24-hour pooled urine of the period 24–48 hours after operation remained greater than 1·010, suggesting that the duration of this phenomenon was variable and might extend into the second 24 hours after operation. To investigate the duration of this phenomenon cases have been studied with detailed observations on 4-hourly urine specimens.

Material and Methods

Five patients (two men and three women) have been studied. In three the operation was excision of the rectosigmoid, with end-to-end anastomosis; the remaining two patients underwent a Wertheim's hysterectomy and a subtotal hysterectomy with left inguinal colostomy. In all the cases the operations were performed under general anæsthesia, and the intake of water and electrolytes was by mouth before operation and by intravenous administration from the time of operation until the conclusion of the observations. These cases were selected for observation for no other reason than that their treatment required the presence of an indwelling urethral catheter.

When an intragastric drip feed was given before operation, it consisted of an electrolyte-free mixture of 'Casinal,' glucose, and arachis oil in water, to which sodium and potassium salts were added in known amounts (LeQuesne and Lewis 1953). After operation the intake of water and electrolytes was maintained by intravenous administration of 5% glucose, physiological saline solution, and, in some cases, a solution containing 80 m.eq. of sodium chloride and 80 m.eq. of potassium chloride in 2 litres of 5% dextrose; this intravenous intake provided no protein and only 600 calories per 24 hours.

In all the cases the 4-hourly specimens were obtained with an indwelling balloon catheter. On the specimens obtained the following estimations were made: volume; specific gravity; chloride concentration by modified micro-Volhard method; sodium concentration with a flame photometer (Evans Electroselenium Ltd.). In those cases in which pooled 12-hour or 24-hour specimens of urine were also examined, these were preserved under toluol. In case 5 venous blood was withdrawn into a heparin tube for the following estimations: plasma-proteins and hæmoglobin by the method of Phillips et al. (1950); plasma-chloride by the Volhard-Harvey method; plasma-sodium by flame photometry. In those patients who were weighed the observations were in all cases made by the same observer, using the same scales (Avery, model 1064).

Results

In all the cases, whether on a fixed intake before and after operation (cases 1, 2, and 4) or on an unrestricted intake preoperatively (cases 3 and 5) the intake after operation was such that a high volume of urine of low specific gravity would be expected. But, in all the cases observed, operation was followed by a pronounced fall in the rate of urine flow, with a synchronous rise in urinary specific gravity and chloride concentration. These changes usually lasted about 36 hours after operation, but in case 5 were prolonged for 72 hours after operation. This reduction in urine output led to water retention, which was shown by weight gains, and in case 5 this retention was sufficiently severe to lead to water intoxication. The results of all 5 cases are summarised in the accompanying table, and the essential data for each case are considered in detail below.

Case 1.—Man aged 55. Colectomy. Drip feed for 4 days preoperatively: intake 4 litres of water and 170 m.eq. of sodium per 24 hours, with no potassium; in addition 1 pint of citrated blood given during operation. Preoperative urine flow, &c., calculated from 24-hour pooled specimen. Diminished urine flow, with increased specific gravity and chloride concentration, for 20 hours after operation. Weight gain during 24 hours after operation 1·9 lb. (0·85 kg.). Details of this case have been published previously by LeQuesne and Lewis (1953).

Case 2.—Man aged 65. Colectomy. Drip feed for 2 days preoperatively: intake 4 litres of water and 170 m.eq. of sodium per 24 hours throughout, with 100 m.eq. of potassium preoperatively per 24 hours, but none in intravenous fluids; 1 pint citrated blood given during operation in addition to this intake. Intravenous fluids started 4 hours before anæsthesia and operation. Fig. 1 shows urine output, specific gravity, and chloride concentration and excretion for 36 hours after operation: the dissociation between the urine chloride concentration and excretion is due to coincident salt retention. Diminished urine flow, with increased specific gravity and

SUMMARY OF FINDINGS

Case no.	Operation	Urine flow (ml. per min.)			Urine (sp. gr.)			Urinary chloride (m.eq. per litre)		
		Preop.	Min. postop.	Return to preop. (hr.)	Preop.	Max. postop.	Return to preop. (hr.)	Preop.	Max. postop.	Return to preop. (hr.)
1	Partial colectomy ..	2·6	0·5	20	1007	1025	20	44	166	16
2	Partial colectomy ..	2·6	0·3	28	1007	1025	28	42	131	28
3	Hysterectomy and colostomy	2·4	0·2	40	1006	1031	44	58	178	44
4	Wertheim's hysterectomy	3·1	0·35	40	1005	1026	48	34	144	32
5	Partial colectomy ..	1·4	0·2	72	1007	1030	72	88	120	..

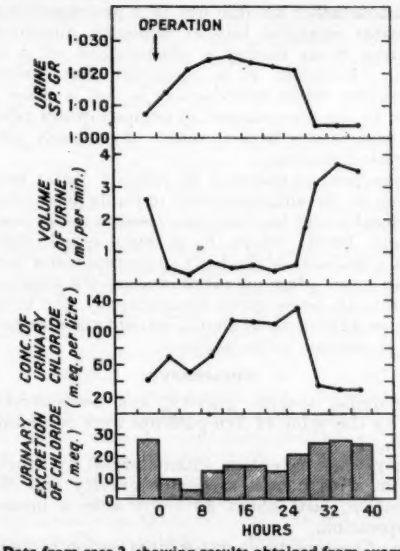


Fig. 1—Data from case 2, showing results obtained from examination of successive 4-hourly specimens of urine.

For 28 hours after operation there is a much diminished urine flow despite a constant water intake. This is accompanied by an increase in urine specific gravity and chloride concentration, though the absolute urinary excretion of chloride decreased owing to coincident salt retention (early sodium retention).

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chloride concentration, for 28 hours after operation. Weight gain during 24 hours after operation 2·9 lb. (1·3 kg.).

Case 3.—Woman aged 50. Hysterectomy and colostomy. On normal unrestricted diet until 12 hours before operation, when oral feeding was stopped and intravenous fluids started. Thereafter, throughout period of observation, received each 24 hours 3 litres of water, 80 m.eq. of sodium, 80 m.eq. of potassium, and 160 m.eq. of chloride. Postoperative changes as in previous cases. Diminished urine flow, with increased specific gravity and chloride concentration for 44 hours after operation. Body-weight not recorded.

Case 4.—Woman aged 52. Wertheim's hysterectomy. Drip feed for 3 days before operation and intravenous fluids started 6 hours preoperatively. Intake throughout 3 litres of water, 80 m.eq. of sodium, 80 m.eq. of potassium, 160 m.eq. of chloride per 24 hours; 1 pint of citrated blood given in addition during operation. Postoperative figures similar to those in cases 1, 2, and 3. Diminished urine flow, with increased specific gravity and chloride concentration for 40 hours postoperatively.

Case 5.—Woman aged 67. Resection of sigmoid colon. On normal diet preoperatively. Nil by mouth for 4 hours before operation; intravenous fluids were begun at start of operation. Uneventful recovery until 48 hours postoperatively, when she became very agitated and restless, with much nausea and retching but no vomiting.

Examination showed her to have a soft flat abdomen with no sign of paralytic ileus or peritonitis; she appeared to be well hydrated, with a full pulse, blood-pressure 165/75 mm. Hg (preop. 180/85), and full peripheral veins, with slightly raised jugular venous pressure. The liver was not palpable, and the lung bases were clear, but there was minimal sacral œdema. Up to the time of examination, during the 48 hours following operation, she had received intravenously 1 pint of blood and 5·9 litres of intravenous fluids, containing 120 m.eq. of sodium, 47 m.eq. of potassium, and 160 m.eq. of chloride. During this period the urine output had been just under 2 litres, and examination of the 4-hourly specimens showed that there was still a much diminished urine flow with high specific gravity at this late period after operation (fig. 2). Mild water intoxication was diagnosed, and was confirmed by the following findings: plasma-sodium 122 m.eq. per litre; plasma-chloride 78 m.eq. per litre; Hb 77%.

The patient was weighed as a check on further progress, and during the ensuing 24 hours received 2·6 litres of fluid intravenously, containing 80 m.eq. of sodium chloride. At the end of that time her clinical condition was essentially unchanged and there had been little change in the plasma figures and body-weight. The urine output for the 24 hours was 1655 ml., but the 4-hourly figures still showed a diminished flow, with raised specific gravity, 72 hours postoperatively. 4 hours later a diuresis, with fall in the urine specific gravity, developed with dramatic suddenness (fig. 2). This diuresis continued for 24 hours, during which time the urine output was considerably in excess of the fluid intake, and was accompanied by a loss of weight of 4·1 lb. (1·7 kg.); a rise of the plasma figures to normal levels (sodium 147 m.eq. per litre, and chloride 91 m.eq. per litre; Hb 89%) (fig. 3); and complete clinical recovery.

There was diminished urine flow with raised urine specific gravity for 72 hours postoperatively.

Discussion

In the twenty-one cases reported previously (LeQuesne and Lewis 1953) 24-hour pooled urine specimens were examined. However, this method did not show clearly the duration of primary water retention, which appeared to last 24 hours after operation in most cases, and in no case lasted longer than 48 hours. In the five cases reported here the urine was collected every 4 hours; and by this technique it was found that, in the present cases, primary water retention lasted 20–72 hours after operation. However, in case 5 the phenomenon was abnormally prolonged, and if this case is omitted the average duration of the postoperative oliguria was 33 hours. All the patients observed were undergoing relatively major operations, and it is not suggested that an oliguria of this duration follows less severe operations; but it may be concluded that after a severe operation primary water retention lasts 24–36 hours, and that in occasional cases it may be prolonged into the third postoperative day.

It was pointed out in the previous paper that the features of primary water retention strongly suggest that this phenomenon is due to a secretion of posterior pituitary antidiuretic hormone, and it was concluded that after operation there is a release of this hormone. Cline et al. (1953) claim to have demonstrated the presence of an antidiuretic substance in the urine of patients during the first 24 hours after operation, but their method is liable to give non-specific results (Lewis 1953). Further,

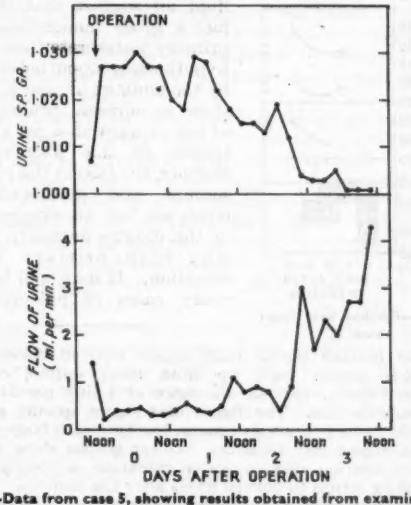

Fig. 2—Data from case 5, showing results obtained from examination of successive 4-hourly specimens.

In this case the diminished urine flow and raised specific gravity lasted for 72 hours after operation and were then followed by diuresis.

Hayes and Coller (1952) report that, in a patient with panhypopituitarism and diabetes insipidus, an unspecified operation did not produce oliguria of the usual magnitude, despite the administration of adrenocortical hormones. In all the cases reported here the urinary changes after operation (low urine volume, with high specific gravity and raised chloride concentration) are identical with those produced by an injection of antidiuretic hormone, in spite of the different loads of water and electrolytes given, and it seems probable that a prolonged release of this hormone takes place after every major operation.

In case 5 primary water retention continued so long that mild water intoxication developed, with extracellular hypotonicity. This postoperative complication was first reported by Helwig et al. (1935), who reported that a patient died in convulsions 41 hours after cholecystectomy, during which time she had absorbed 9 litres of tap-water per rectum and excreted only 1 litre of urine. Since then many cases have been recognised, and Zimmermann and Wangensteen (1952) reported seventeen cases, most of which presented with unconsciousness and coma and developed 12–36 hours after operation; three patients died. All the cases showed much lowered plasma-sodium and plasma-chloride levels, and most of them gained weight, amounting in several cases to 2–4 kg. All the patients had received large quantities of salt-free fluid in the 24 hours after operation and all the patients who were treated by restriction of the water intake and the administration of salt showed prompt improvement.

From a study of the literature it appears that our case 5 is the first to be observed in such detail throughout the development and recession of postoperative water intoxication. Zimmermann and Wangensteen (1952) suggest that the condition is due to an inadequate or unusual adrenocortical response to surgical operation. However, the fact that water intoxication occurs within the first 48 hours after operation, that it is accompanied by much dilution of the extracellular fluid, and that it is precipitated by the excessive administration of salt-free fluid all suggest that it is in fact a gross manifestation of primary water retention. This hypothesis is supported in detail by the findings in case 5, which show an unusual prolongation of the urinary changes characteristic of this phenomenon. Further, the falls in the plasma-sodium and plasma-chloride levels are but an exaggeration of the change normally occurring with primary water retention. It may well be that many cases of postoperative water intoxication are due not to a prolongation of primary water retention but to excessive administration of salt-free fluids during a phenomenon of a normal duration. However, it is suggested that, essentially, postoperative water intoxication is but a gross manifestation of the phenomenon of primary water retention, and as such is due to a secretion of posterior pituitary antidiuretic hormone.

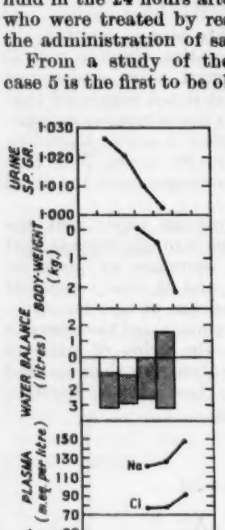

Fig. 3—Further data from case 5.

Upper balance shows water intake charted below baseline with output built up from this: output consists of urine volume, plus an allowance of 1 litre per 24 hours for insensible loss. The figure also shows specific gravity of pooled 24-hour urine specimens, together with body-weight changes during last 48 hours. Lower graphs show plasma figures; dilution due to water retention is clearly seen, followed by return to normal levels after the diuresis. Lower balances show sodium exchanges: water retention was accompanied by negligible alteration in sodium balance, which clearly played no part in whole disturbance; cross-hatched area on day of operation represents allowance made for losses during operation.

The practical importance of primary water retention in relation to the administration of fluids postoperatively is considerable and has been discussed in detail elsewhere (LeQuesne 1953), where it is emphasised that this temporary inability of the body to excrete water normally for 24–48 hours after operation necessarily implies that, when fluids are being given intravenously, the volume of 5% glucose administered should be controlled as carefully as that of isotonic saline solution.

Summary

The volume, specific gravity, and concentration of chloride in the urine of five patients were recorded after operation.

Primary water retention, characterised by diminished urine flow, with increased specific gravity and chloride concentration, lasts about 36 hours after a moderately severe operation.

A case of postoperative water intoxication is described. The detailed observations of urine output showed the condition to be due to an unusually prolonged episode of primary water retention.

My thanks are due to my colleague Dr. A. A. G. Lewis for his advice throughout this work: and to Mr. G. L. S. Pawan, B.SC., and Miss S. Morris for their skilled technical assistance. I am indebted to the editor of the *Annals of the Royal College of Surgeons* for permission to publish the full details of the case of water intoxication which was briefly described in that journal, and to Mr. W. R. Winterton for his permission to observe and report case 4.

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CANCER OF THE BREAST

THE PRINCIPLES OF SURGICAL TREATMENT

C. C. HOLMAN
M.B. Camb., F.R.C.S.
EMERITUS SURGEON, NORTHAMPTON GENERAL HOSPITAL

RELATIVELY few surgeons devote much time to research. After forty years' work I am still seeking the answer to the following questions about cancer of the breast:

(1) After removal of the breast, together with all obvious secondary glands, to what extent can the natural defences deal with minor metastases?

(2) If the patient's health is reasonably good, are her interests best served by the widest practicable excision of the breast with the overlying skin, the underlying structures, and the adjacent lymphatic glands?

(3) Is there anything to be said in favour of a two-stage operation?

Metastases

In 1930 I saw a woman, aged 46, with carcinoma of the breast and a mass of enlarged axillary glands. I performed the orthodox radical operation and found that the affected glands extended to the apex of the axilla. It seemed unlikely that I could have removed them all, and I thought the patient would die within two years.

Yet twenty-two years after the operation her doctor reported her to be alive and apparently well. Most experienced surgeons must have met with similar cases of unexpectedly long survival which suggest the possibility of spontaneous cure.

Insufficient attention has been paid to the work of R. S. Handley (1948), who, in 20 radical operations for cancer of the breast, removed the internal mammary glands from the second intercostal space. In 6 patients no secondaries were found; in 9 there were secondaries in both the axillary and the intercostal glands; in 3 secondaries were found only in the axillary glands, and in 2 only in the intercostal glands. In other words, out of 8 patients who would be classified as having stage-I cancer 2 had secondaries in the intercostal glands. By an operation which does not include an attack on the internal mammary glands, it is quite possible to obtain a ten-year survival-rate in 80% of patients clinically in stage I. Some of the 20% who fail to survive may die from causes other than cancer, yet it would be a bold assumption to say that extirpation of these glands, if such were possible, in the course of the radical operation would bring the expectation of life up to normal. The fact that no glands removed by Handley from the intercostal space exceeded the size of an orange pip supports the possibility of destruction or incarceration of the malignant cells. To put the matter differently, it seems that some of the patients who survive for ten years may have had metastases in the internal mammary glands at the time of operation. Whether the malignant cells were actually destroyed is debatable.

In passing I would say that my experience of recurrence after operation does not suggest that it often originated in the internal mammary glands.

Radical or Conservative ?

Over fifty years ago Halsted introduced the operation which bears his name. The operation, with minor modifications, is still favoured by most surgeons, although there is no proof that it is necessarily the best method of surgical attack on cancer of the breast. The Halsted technique is practised in Baltimore with almost religious zeal. According to Finney et al. (1947) the operation, which includes complete removal of the pectoralis major, takes three or four hours. A five-year survival-rate of 49% for all traced patients differs little from Harnett's (1948) figures for the City of London (47·6%).

Occasional advocates of less drastic surgery have appeared from time to time. Forty years ago J. B. Murphy, one of the best-known surgeons of his generation, wrote:

"It has been my practice for years not to take out the pectoral muscles. It is based on the original report made by Bryant of London, in Guy's Hospital, who has seen but one case of recurrent carcinoma in the pectoral muscles in an experience extending over forty years. That is one argument that has appealed to me in the way of observation against the extensive operation of Halsted, which we did for many years and then abandoned. When the carcinoma went through the posterior mammary capsule and into the pectoral muscles, Bryant took out the pectoral muscles. So do we" (Murphy 1912).

His ideas receive support from the anatomical aspect by the work of Gray (1938), who wrote as follows about the lymphatics of the subcutaneous tissue of the breast:

"They lie in the superficial fascia or fat, for the most part not directly on and rarely in the deep fascia. They perforate the deep fascia at certain focal points or more strictly speaking areas which are correctly given in the ordinary text books. The deep fascia itself is practically devoid of lymphatic vessels."

Gray added:

"Cancer cells generally do not remain for any length of time within the lumen of a lymphatic vessel."

Wakeley (1948) has advised local removal when the growth in a stage-I case is in the inner quadrants and the breast is small.

Harnett (1948) records noteworthy survival figures. The expectation of life five years after radical mastectomy ranges from 91·03% of normal in stage I to 68·4% in stage IIIb. When local mastectomy was done in 17% of patients, the expectation of life varied from 97·63% of normal in stage I to 70% of normal in stage IIIb. The issue is confused, because in 83 out of 133 cases of so-called local mastectomy the axillary nodes also were excised. After his attention had been drawn to these figures, Harnett (1949) concluded that the difference in survival-rate (not the expectation of life) in cases in which the glands were excised did not statistically differ from the others. I am not a statistician, but the original figures are not those one would expect if the orthodox radical operation is the operation of choice. The whole problem seems to require review.

The best five-year survival figures known to me are those published by McWhirter (1950), who advocates removal of the breast but not the deep fascia, and subsequent X-ray treatment of the axilla. He claims a five-year survival-rate of 62% for all operable cancer.

My own experience supports Murphy's (1912) view that little is gained by removing the pectoral muscles in every case. For many years, in nearly all stage-I cases and in an increasing proportion of stage-II cases, I have practised an operation which removes the breast with a wide area of skin round the tumour and a much wider area of deep fascia together with the axillary glands but preserves the pectoral muscles. A few years ago I followed up nearly all the patients operated on between 1930 and 1942. Those not traced were presumed to be dead. Of 53 stage-I patients whose pectoral muscles were preserved 44 (83%) were alive and apparently well from five to ten years after. Of 3 whose pectoral muscles were removed 1 died within five years. Of 106 stage-II patients whose pectoral muscles were not removed 44 (42%) survived five years or more; of 66 whose pectorals were removed 24 (36%) survived for five years. The latter group contained, on the average, patients with more advanced cancer, but a survival-rate of 39·5% for all stage-II patients compares not unfavourably with other published figures. The chief advantage of removing the pectoral muscles is improved access to the axilla, but by firmly retracting the pectoral muscles a clearance which appears to be adequate is obtainable. Range of movement is not restricted by removal of the pectoral muscles but loss of power in younger women must be considerable.

As a corollary to the question of radical excision, is it possible that, in some cases, the patient's resistance to cancer may be lowered by a severe operation? Wakeley (1948) states that Watson Cheyne often divided the clavicle and removed glands from the posterior triangle. The patient rarely survived six months, and died of general metastases and recurrence in the supraclavicular region. The implication seems to be that death was accelerated by the operation. McWhirter (1948) found that after radical surgery plus postoperative X-ray treatment the five-year survival-rate was 44%, whereas after simple mastectomy and X-ray treatment the five-year survival-rate was 55·9%.

If other workers using McWhirter's technique can obtain results as good, his method should be generally adopted. Meanwhile it seems that simple mastectomy in stage-I patients would be justifiable, provided the patient could be kept under regular observation. Although cancer of the lip and tongue is not strictly comparable to cancer of the breast it is interesting to note that Cade (1949), although admitting that secondary glands are better treated by surgery than by radiotherapy, condemns "prophylactic" block dissection of the neck.

He says that block dissection should be done only if the glands are enlarged, clinically malignant, and definitely operable. My experience of these cases is relatively small, but this is the principle I adopted many years ago. In cancer of the breast my practice has always been to remove the axillary glands together with the breast, because it seemed reasonable. A similar line of attack on cancer of the testis, which also seemed reasonable, has long been abandoned in favour of orchidectomy followed by X-ray therapy.

Summary

The principles of the orthodox operation for cancer of the breast are questioned.

Attention is drawn to McWhirter's work, and the possibility of conservation of the pectoral muscles without detriment to the patient's prospects.

Addendum

While this article was waiting publication Williams et al. (1953) published a detailed analysis of over a thousand cases of cancer of the breast treated by various methods. They reach conclusions unfavourable to radical surgery compared with conservative surgery plus radiotherapy.

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GLANDULAR METASTASES IN CARCINOMA OF THE BREAST

RESULTS OF A MORE RADICAL OPERATION

M. ANDREASSEN
M.D.
LECTURER IN SURGERY

E. DAHL-IVERSEN
M.D.
PROFESSOR OF SURGERY

BØRGE SØRENSEN
M.D.
ASSISTANT SURGEON

SURGICAL CLINIC C OF THE UNIVERSITY, RIGSHOSPITALET, COPENHAGEN, DENMARK

UNTIL recently it was believed that cases of carcinoma of the breast could usefully be divided into two categories, depending on whether the microscope showed carcinoma cells in the axillary lymph-glands or not. The importance of this division of cases into so-called stage I and stage II lay in the fact that whereas 80% of the former patients remained free from recurrence for five years, only 20–40% of the latter (depending on the extent of gland invasion) were free from recurrence after five years. But lately it has been realised that the state of the axillary glands is a misleading basis for classification and that it is necessary to know also the state of the supraclavicular and the parasternal glands before a case can be placed in the right stage. Thus, the supraclavicular glands may (although in our experience rarely) be invaded when the axilla is free from carcinoma, and the parasternal glands may be invaded when the axilla remains normal, especially when the primary growth is in the medial half of the breast.

According to this more rigorous view, in stage I there is no invasion of any of these three groups of glands. Invasion of the axillary glands still indicates a stage-II growth: but it is open to question whether the invasion of the parasternal glands should be included in stage II or in stage III. On the other hand, when there is invasion of the supraclavicular glands the case is definitely in stage III. Furthermore, it may well be that involvement of the supraclavicular and parasternal glands means that the case is inoperable.

Haagensen and Stout (Haagensen 1946, 1949, Haagensen and Stout 1943) and McWhirter (1949a and b) suggest that operability has not been judged strictly enough. The decisive factor is the extent of the invasion of the regional lymphatic system. Haagensen takes as signs of inoperability the following: extensive œdema of the skin of the breast, cutaneous metastases, fixation of the tumour to the thoracic wall, large metastases in axillary glands that are adherent to the skin or to the lateral wall of the thorax, and axillary glands in which metastases have penetrated the capsule and infiltrated the fatty tissue. Of these signs, only fixation to the thoracic wall was formerly taken to indicate inoperability. According to Haagensen and Stout, if patients in whom one or more of these signs are present are subjected to the customary operation of radical mastectomy—including the removal of the axillary glands only—they will die of metastases within six years at the most. McWhirter reported similar findings, which led him to abandon the usual radical operation in favour of simple mastectomy, followed by irradiation of the glands. These investigations suggest that when these signs of inoperability are present the radical operation encourages metastases.

Even when the decision to operate has been made, there is still the question of how extensive an operation to perform. In view of the significance now attributed to the supraclavicular and parasternal glands, a more radical operation than the one commonly performed may be justified; and we have been using such an operation since 1947.

Experiences with an Extended Operation

We have extended the original radical operation to include removal of the supraclavicular or parasternal lymph-glands or both. (In cases with considerable lymphatic spread we perform a simple removal of the breast, followed by the method of irradiation suggested by McWhirter. If lymph-glands remain in the axilla after irradiation they should, in our view, be removed.) Our early experiences have already been reported.

First series.—In 98 consecutive cases we removed the supraclavicular glands in addition to the axillary ones. None of these patients had signs or symptoms of invasion of the supraclavicular glands. This series was published in 1949 (Andreassen and Dahl-Iversen 1949). Five years have now passed since the last of these operations was performed. This series has now been followed up, and the results are summarised in this article.

Second series.—In another series of 53 patients with carcinoma of the breast (Dahl-Iversen 1951), we removed both the axillary and the parasternal glands in cases which were operable according to Haagensen's criteria.

Third series.—In a third series, treated in 1951 and 1952, we removed the axillary, the supraclavicular, *and* the parasternal glands in 76 patients (Dahl-Iversen 1952).

The aim of this work was to find out how often the ordinary radical operation failed because the supraclavicular and parasternal glands were not removed. Earlier reports had suggested that it might fail for this reason: metastases in the supraclavicular glands (as the first recurrence in cases with involvement of the axillary glands) appeared in 27% of cases in a series reported in 1927 (Dahl-Iversen 1927); and later workers have found a similar proportion of recurrences in this site.

First Series

In our first series, which consisted of operable cases in the original sense and in which the supraclavicular glands were removed, microscopic metastases were present in the

supraclavicular glands in 17 (33%) of those cases with metastases in the axillary glands. When the cases which were inoperable by Haagensen's criteria were excluded, there remained 11 operable cases with microscopic metastases in the supraclavicular glands.

Second Series

Turning to the question of the parasternal glands, we found that in these 53 cases, which were operable according to the new assessment, there were microscopic metastases in the parasternal glands in 24% of those cases with metastases in the axillary glands; and in those cases in which the primary tumour was in the medial half of the breast the proportion was 30%. The incidence of microscopic metastases in the axillary glands was 52% in our first series, in which the supraclavicular glands were removed, and 47% in our second series, in which the parasternal glands were removed. Handley and Thackray (1949) described a series in which 62% showed microscopic invasion of the axillary glands and 38% showed similar involvement of the parasternal glands. Margottini and Bucalosi (1949) found metastases in the axillary glands in 61% of their patients; and the parasternal glands were invaded in 23%.

Third Series

As far as we know, the third series of 76 cases represents the first extensive inquiry into the condition of the axillary, parasternal, and supraclavicular glands in each of a group of patients with carcinoma of the breast. Microscopic invasion of the supraclavicular glands was found in 9% and of the parasternal glands in 52% of those cases in which the axillary glands were involved. This series included less advanced cases than our first series; thus, the axillary glands were invaded in only 43%, and the supraclavicular glands in only 9% of cases with axillary metastases. Nevertheless, the parasternal glands were invaded more than twice as often as in our second series. This is to some extent due to alterations in operative technique: in the first series we removed the glands through the intercostal spaces; and in the second we first opened the thorax and then excised the internal mammary vessels with the tissue surrounding them—a method which would produce a greater number of positive sections. Moreover, there may have been a different proportion of medial carcinomas in the two series.

By this time we had accumulated a total of 280 cases involving the removal of (*a*) supraclavicular glands only (175 cases); (*b*) parasternal glands only (129); and (*c*) both groups (76). No surgical complications followed the removal of the supraclavicular glands, but a few pneumothoraces were caused by excision of the parasternal glands. It was possible to remedy this in every case by reinflation of the lung at the end of the operation. Tracheal intubation was used during all operations. The mortality in the whole series was as low as with the ordinary so-called radical operation.

A Fourth Series

During the past ten months we have operated on a further 100 patients, removing both supraclavicular and parasternal glands. The distribution of the metastases in this fourth series is given in table I; and table II shows the distribution related to the position of the primary growth in the breast.

TABLE I—SITE OF MICROSCOPIC METASTASES IN 100 CASES OF CARCINOMA OF THE BREAST

Site of metastases	Alone	With other metastases			Total
		Axillary	Parasternal	Supraclavicular	
Axillary	25	—	13	3	41
Parasternal	4	13	—	0	17
Supraclavicular	0	3	0	—	3
No metastases	—	—	—	—	55

There were thus 29 cases with metastases in one group of glands only: 16 with metastases in two groups; and 55 with no metastases. In no case were there metastases in all three groups.

TABLE II—SITES OF MICROSCOPIC METASTASES AND PRIMARY GROWTH IN 100 CASES OF CARCINOMA OF THE BREAST

Site of metastases	Site of primary growth	
	Medial	Lateral
Axillary only	4	21
Parasternal only	4	0
Axillary and parasternal	7	6
Axillary and supraclavicular	0	3
No metastases	22	33
Total	37	63

It will be seen that in this series there was microscopic invasion of the supraclavicular glands in 7% and of the parasternal glands in 32% of those cases in which the axillary glands were involved; and the axillary glands were invaded in 41% of all cases. Furthermore, in 4 cases of medial carcinoma the only metastases were in the parasternal glands. With the former radical operation these cases would have been included in stage I. In none of these 100 cases, nor in our third series, did we find invasion of the supraclavicular glands when the only other microscopic metastases were parasternal.

Metastases to the parasternal glands were present in 11 out of the 37 cases of medial carcinomas, but in only 6 out of the 63 lateral carcinomas. The supraclavicular metastases were confined to the lateral group.

The Operation

The method we use to remove the supraclavicular glands has already been described (Andreassen and Dahl-Iversen 1949). The technique for dealing with the parasternal glands originally consisted in removing them through the intercostal spaces, but in the last two series they have been excised by cutting through the 2nd, 3rd, and 4th costal cartilages 1–1½ cm. from the sternal border. It is then possible to raise the wall of the thorax with gauze strips, so that the internal mammary vessels and glands are clearly exposed. We used to remove the glands and lymphatics in the same way as in the axilla, but in the last 100 cases we have excised the vessels with the accompanying lymphatics and glands and all fatty tissue from beneath the first cartilage down to the level of the fifth cartilage. We do not evacuate the fifth intercostal space because there is evidence (Stiebbe 1918, Dahl-Iversen and Sørensen 1951) that parasternal glands are very rarely present in the fifth intercostal space.

Urban and Baker (1952) described a method of removing the parasternal glands which involved extensive resection of the anterior thoracic wall, including the pleura, in order to remove the lymphatics perforating the thoracic wall, as well as any unusually placed glands. Further follow-up examinations will be needed to decide whether this operation is justifiable.

Results in the First Series

Of the 98 cases in the first series, in which the axillary and the supraclavicular glands were removed, 47 were in stage I (without microscopic metastases to the axillary glands) and 51 were in stage II. In no case were there macroscopically demonstrable metastases in the supraclavicular glands. All patients received X-ray treatment after operation. In 17 out of the 98 cases, there was microscopic invasion of the supraclavicular glands. These 17 cases were all in stage II—i.e., this form of invasion was present in 33% of stage-II cases—and 11 of them were operable according to Haagensen's criteria.

The follow-up of each case in the first series continued for at least five years after the operation—the average

time was five years and four months. We found 12 recurrences in the 47 cases in stage I—a freedom from recurrence of 74%—and 40 recurrences among the 51 stage-II cases, which represents a freedom from recurrence of 22%. Of the 17 cases in which microscopic metastases to the supraclavicular glands had been demonstrated at operation, 3 were free from recurrence; 2 of these 3 were among the 11 which were operable according to Haagensen's criteria, and the third belonged to the group which was inoperable according to these criteria. The remaining 14 patients died of metastases in from six months to four years after the operation.

The removal of the supraclavicular glands in cases with no axillary metastases was unnecessary, since, according to our experience, they are only very rarely invaded directly or parasternally; thus, no case in our series showed metastases in the supraclavicular glands but not in the axillary glands. But the question whether the axillary glands are invaded or not cannot be settled with certainty by clinical observation alone, and, consequently, this point is of no practical importance.

Conclusion

Two questions arise from this follow-up:

(1) Has the removal of the supraclavicular glands, as an addition to Halsted's radical operation and combined with postoperative irradiation, improved the results in cases with axillary metastases?

(2) Is microscopically demonstrable invasion of the supraclavicular glands tantamount to inoperability in the same way as macroscopic invasion?

Our results do not suggest any improvement, for a freedom from recurrence of 22% in 51 cases with microscopic metastases to the axillary glands is no higher than the proportion found in similar series in which the supraclavicular glands were not removed. Even though this series is not large enough to allow definite conclusions, it suggests that microscopic invasion of the supraclavicular glands can *not* be taken as a sign of inoperability, for there was still a freedom from recurrence of 18% after five years' observation.

The main conclusion from this follow-up is that the removal of the supraclavicular glands, together with the glands and fatty tissue from the axilla, cannot alone improve the chances of five years' freedom from recurrence, even though this series included 3 cases with no recurrences for five years among the 17 in which there were microscopic metastases in the supraclavicular glands.

Summary

As an extension of our earlier work, 100 patients with carcinoma of the breast were treated with a more radical operation, in which the supraclavicular and parasternal glands were removed in addition to the axillary glands. In 4 patients, all of whom had a primary growth in the medial half of the breast, the *only* metastases were in the parasternal glands; formerly these cases would have been grouped in stage I. The parasternal glands were involved in 11 of the 37 medial carcinomas, but in only 6 of the 63 lateral growths.

The five-year results of an earlier series of 98 cases, in which the only addition to the usual radical operation was the removal of the supraclavicular glands, suggest that this extended operation cannot alone improve the patient's chances. The freedom-from-recurrence rate in stage-II carcinomas was no better than in other series in which the supraclavicular glands were not removed. On the other hand, out of 17 patients with microscopic metastases in the supraclavicular glands, 3 were free from recurrence after five years; so microscopic invasion of these glands did not indicate that the growth was in fact inoperable.

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ASCORBIC-ACID METABOLISM AFTER ADMINISTRATION OF CORTICOTROPHIN

R. R. McSWINEY
M.B. Lond.
SENIOR LECTURER IN CHEMICAL PATHOLOGY IN THE UNIVERSITY OF LONDON

B. E. CLAYTON
M.D., Ph.D. Edin.
HOLDEN RESEARCH FELLOW, ST. THOMAS'S HOSPITAL, LONDON

F. T. G. PRUNTY
M.A., M.D. Camb., F.R.C.P.
READER IN CHEMICAL PATHOLOGY IN THE UNIVERSITY OF LONDON; PHYSICIAN TO ST. THOMAS'S HOSPITAL, LONDON

THE high concentration of ascorbic acid in the adrenal cortex and its disappearance in many species when corticotrophin is injected (e.g., Sayers et al. 1946) suggest an important relationship between ascorbic acid and adrenal cortical activity. It is uncertain whether the ascorbic acid which disappears is consumed within the cortex or extruded into the plasma; Vogt (1948) could find no evidence for the latter process in dogs and cats.

In addition there is evidence that the adrenal cortical hormones affect ascorbic-acid metabolism throughout the body: Hess et al. (1951) have reported changes in the blood-glutathione level in response to adrenal cortical activity, and other reports by Prunty and Vass (1943a) and Stewart et al. (1953) indicate that ascorbic-acid metabolism is probably related to that of glutathione. Changes in the tuberculin sensitivity of guineapigs have been interpreted by Long et al. (1951) as showing that cortisone exerts its effects by increasing the conversion of ascorbic acid to dehydro-ascorbic acid.

We therefore studied changes in the quantity of reduced ascorbic acid and its immediate oxidation products in the plasma and urine of patients treated with corticotrophin and in the urine of guineapigs injected with corticotrophin. Control studies were made on patients not treated with corticotrophin. We thought it possible that any considerable changes in the over-all demand for ascorbic acid within the adrenal cortex and elsewhere might be reflected by inverse changes in the quantity of ascorbic acid in plasma and urine, and that any increased conversion of ascorbic acid to its immediate oxidation products might be accompanied by parallel changes in plasma and urine.

Methods

CHEMICAL

Reduced ascorbic acid was determined by titration with dichlorophenolindophenol ("dye"). For plasma the procedure used by Prunty and Vass (1943b) was followed. For urine a suitable volume (1–5 ml.) from a twenty-four-hour save, collected over metaphosphoric acid, was directly titrated with 0·05% dye.

Mindlin and Butler (1938) and Evelyn et al. (1938) showed that urine, but not plasma, contains substances other than ascorbic acid which react with the dye and give falsely high results. Those interfering substances were further investigated and partly characterised by

DR. ANDREASSEN AND OTHERS: REFERENCES

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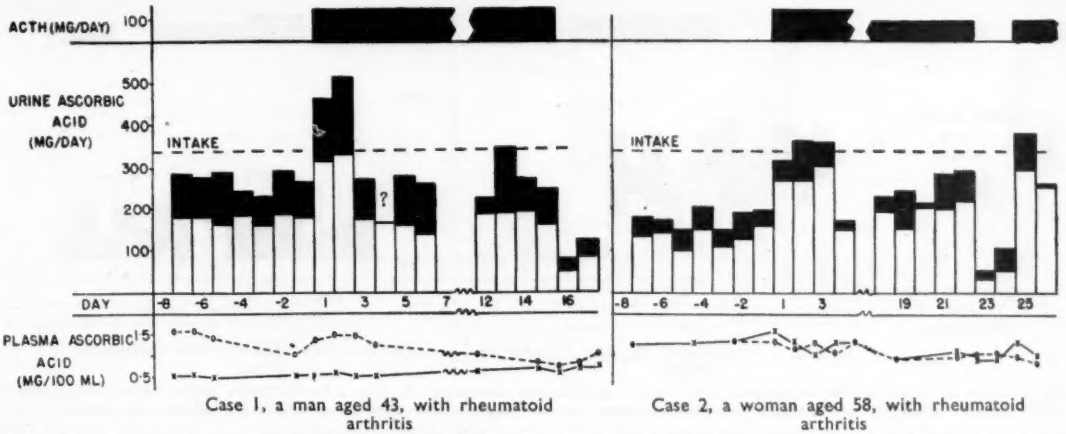

Fig. 1—Effect of corticotrophin in 2 patients with rheumatoid arthritis and high ascorbic-acid saturation, showing levels of ascorbic acid in plasma and in urine before, during, and after corticotrophin therapy.

	Urine	Plasma
Reduced ascorbic acid ...	...	x——x
Total ascorbic acid ...	...	o - - - o

Lugg (1942) and Snow and Zilva (1944) while evolving a method for eliminating them; they may be divided into two general classes, after typical members of each class: "–SH-like" and "reductone-like." The former class is quickly removed by formaldehyde at pH 1·5–3·5; the latter class reacts slowly or not at all with formaldehyde. Ascorbic acid, on the other hand, is slowly removed by formaldehyde at pH 1·5 and rapidly at pH 3·5. In a modification (McSwiney and Prunty unpublished) of Snow and Zilva's method, suitable volumes of urine are adjusted to pH 1·5 and pH 3·5 by electrometric titration with 5*N* hydrochloric acid or with citrate buffer, and to each sample formaldehyde is added to produce a final concentration of 0·29 *M*. After a time which depends on temperature (see Snow and Zilva 1944) a portion of the reaction mixture is titrated with 0·05% dye. It has been found that, after reaction at pH 1·5, 1% of the ascorbic acid has been removed together with the "–SH-like" interfering substances, and at pH 3·5 88% of the ascorbic acid plus the "–SH-like" are removed, whereas the reductone-like substances are mostly unaltered. The difference between the two titration figures therefore represents 87% of the true reduced ascorbic acid originally present. In some urine the ascorbic-acid level is so low that the method cannot be applied with accuracy. This was true of most of the urine from case 6 (fig. 3); in all the other cases the urine-reduced ascorbic acid was determined by the "formaldehyde correction" procedure.

The immediate oxidation products of ascorbic acid are dehydro-ascorbic acid and diketogulonic acid. The former was estimated in urine by reducing it with hydrogen sulphide and titration by the procedure used by Prunty and Vass (1943b). The total of reduced ascorbic acid plus dehydro-ascorbic acid plus diketogulonic acid was determined by the method of Roe and Kuether (1943) as modified by Geschwind et al. (1951). There are again unidentified substances which can interfere with this reaction, as Penney and Zilva (1945) have shown; these substances are not known to be present in human tissues or fluids.

In the light of present knowledge, therefore, it is reasonable to conclude that measurements can be made of: (1) reduced ascorbic acid (dye titration directly for plasma filtrate, with formaldehyde correction for urine); (2) dehydro-ascorbic acid (treatment with hydrogen sulphide); and (3) reduced ascorbic acid plus its immediate oxidation products (Roe and Kuetherer's method).

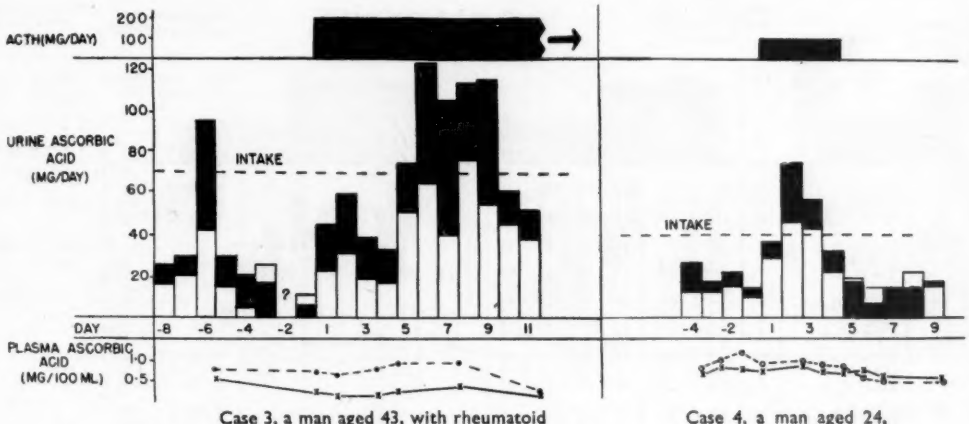

Fig. 2—Effect of corticotrophin in patients with "intermediate" ascorbic-acid saturation. Symbols as in fig. 1.

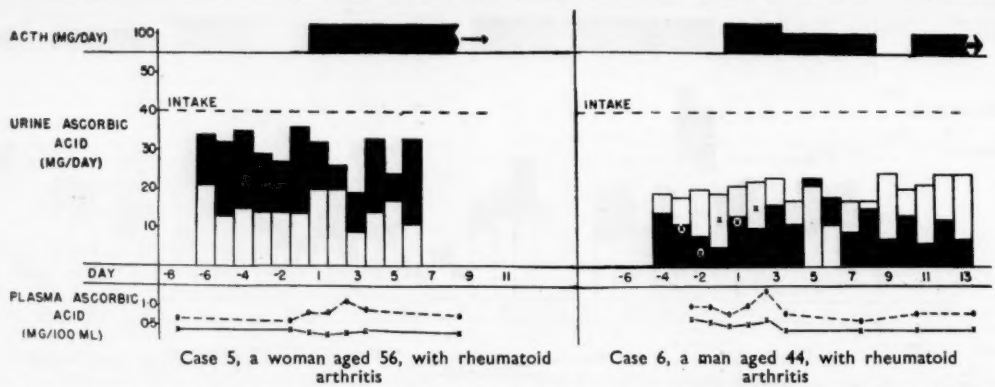

Fig. 3—Effect of corticotrophin in patients with "low" ascorbic-acid saturation. In case 6 formaldehyde correction was impossible for most urines, and white blocks indicate uncorrected titration values; formaldehyde corrections are indicated by crosses.

ASCORBIC-ACID INTAKE

In six patients treated with corticotrophin ascorbic-acid intake was controlled by administering a constant diet free from fresh fruit and calculated to contain a maximum of 40 mg. of ascorbic acid a day; this was supplemented in cases 1 and 2 with 300 mg. a day, and in case 3 by 30 mg. a day, of oral ascorbic acid in divided doses. To avoid changes due to recent absorption, the plasma-ascorbic-acid was determined twelve hours after the last oral supplement of ascorbic acid and two hours after a breakfast which contained less than 5 mg. of ascorbic acid.

Three control patients not treated with corticotrophin also received a constant diet with a maximum of 40 mg. a day of ascorbic acid; the purpose in these patients was to study the effect of raising the intake from 340 to 640 mg. a day, and they therefore received oral ascorbic acid in appropriate dosage. Cases 7 and 8 received 300 mg. a day until stabilised on this dosage, and the dosage was then doubled (fig. 5). In case 9 the preliminary stabilising period was shortened by giving 900 mg. of ascorbic acid daily as a priming dose for the first three days.

The guineapigs ate a diet free from ascorbic acid. Since oral ascorbic acid is destroyed in the guineapig intestine, they were injected subcutaneously with ascorbic acid or sodium ascorbate twice daily, the total dose being 10 mg. per 100 g. of body-weight. For sodium ascorbate, ascorbic acid was neutralised to pH 7 with 4·5% sodium bicarbonate; this procedure was adopted because some of the guineapigs showed local irritation with ascorbic acid, and it was thought that this might be responsible for the irregular excretion during the control periods. This, however, was not so.

In all the cases an adequate stabilising period was allowed before either corticotrophin or increased oral ascorbic acid was given.

Results

EFFECTS OF CORTICOTROPHIN

Six patients received corticotrophin; the diagnoses and the dosage are indicated in figs. 1–3; all responded well to the hormone as judged by clinical improvement, decrease in eosinophil-counts, and increases in urine steroid output.

From the results obtained they may be divided into three pairs; cases 1 and 2 had initial plasma-ascorbic-acid levels (Roe and Kuether method) greater than 1 mg. per 100 ml. and were considered to have a "high" saturation of ascorbic acid; cases 3 and 4 had initial

INTAKE AND OUTPUT OF ASCORBIC ACID (MG. PER DAY)

Case no.	Intake (mg. daily)	Substance	Urinary excretion: Base-line before corticotrophin therapy		Outputs on individual days of corticotrophin treatment											Stabilised on corticotrophin		Output in excess of pre-treatment base-line	
			No. of days	Amount (mg. per day)	1	2	3	4	5	6	7	8	9	10	11	No. of days	Amount (mg. per day)	Days of treatment	Amount (mg. per day)
1	340	Reduced A.A.	8	177 ± 9·3	316	334	177	..	..	..	..	..	..	..	..	12	171 ± 29·8	..	292
		D.H.A.A.	8	3·1 ± 2·8	12	3	0	..	..	..	..	..	..	..	..	12	8·8 ± 7·3	1 and 2	..
		Total A.A.	8	263 ± 29·3	464	516	271	..	..	..	..	..	..	..	..	12	285 ± 56·1	..	454
2	340	Reduced A.A.	8	130 ± 18·8	266	266	302	146	..	..	..	..	..	..	..	8	203 ± 24·2	..	438
		D.H.A.A.	8	3·4 ± 1·5	4	6	4	6	..	..	..	..	..	..	..	8	5·6 ± 4·2	1–3	..
		Total A.A.	8	176 ± 20·5	316	362	357	168	..	..	..	..	..	..	..	8	254 ± 28·8	..	501
3	70	Reduced A.A.	7	22 ± 9	23	32	19	17	51	65	41	76	55	45	38	..	..	..	220
		D.H.A.A.	7	3·4 ± 1·4	2	0	0	0	4	1	0	2	20	..	1	..	..	1–11	..
		Total A.A.	7	29 ± 30	45	60	39	33	74	123	105	113	115	61	52	..	..	..	578
4	40	Reduced A.A.	4	12·8 ± 1·8	29	46	43	22	..	..	..	..	..	..	..	..	..	..	88
		D.H.A.A.	4	1·7 ± 0·8	4	7	8	7	..	..	..	..	..	..	..	..	..	1–4	..
		Total A.A.	4	20·3 ± 4·8	37	75	57	32	..	..	..	..	..	..	..	..	..	..	121
5	40	Reduced A.A.	6	15·9 ± 2·8	21	20	9	14	..	..	..	..	..	..	..	8	13·7 ± 5·1	..	−18
		D.H.A.A.	6	3·7 ± 2·2	6	3	1	0	..	..	..	..	..	..	..	8	1·7 ± 2·0	1–8	..
		Total A.A.	6	32·2 ± 3·2	32	26	19	33	..	..	..	..	..	..	..	8	33·3 ± 10·5	..	9
6	40	Reduced A.A.	3	9·0 ± 3·5	12	15	..	..	..	..	..	..	..	..	..	4	14·3 ± 4·7	..	37
		D.H.A.A.	3	5·3 ± 5·0	2	3	..	..	..	..	..	..	..	..	..	4	2·0 ± 2·2	1–7	..
		Total A.A.	3	8·0 ± 2·5	13	10	..	..	..	..	..	..	..	..	..	4	15·3 ± 4·8	..	51

plasma-ascorbic-acid levels of 0·75–1·0 mg. per 100 ml. and were considered to have an "intermediate" saturation of ascorbic acid; and cases 5 and 6 had initial plasma-ascorbic-acid levels of less than 0·6 mg. per 100 ml. and were considered to have a "low" saturation. Those with "high" (cases 1 and 2, fig. 1) and "intermediate" (cases 3 and 4, fig. 2) ascorbic-acid saturation showed effects which were qualitatively similar, and will be called group 1, whereas those with "low" (cases 5 and 6, fig. 3) ascorbic-acid saturation form group 2.

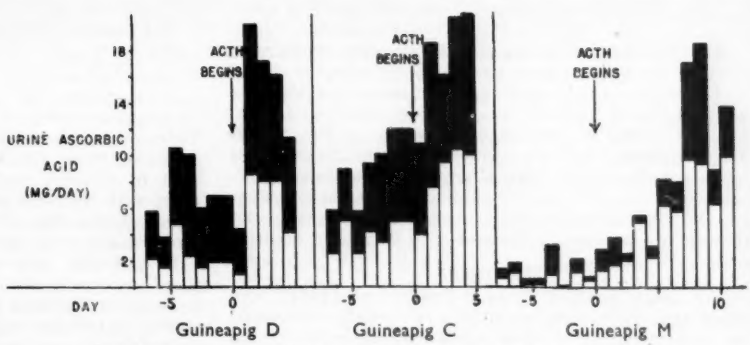

Fig. 4—Effect of corticotrophin on urinary ascorbic acid in guineapigs.

The urinary output of ascorbic acid is shown in the accompanying table and figs. 1–3. The figures show outputs for individual days, and for the sake of clarity the table gives average outputs for the base-line periods and, where possible, for the periods when patients had stable outputs during their course of corticotrophin. Cases 3 and 4 did not become stable. The outputs on various days of treatment with corticotrophin are also shown.

In group 1 corticotrophin increased the urinary output of ascorbic acid usually for the first two or three days only. The amount of ascorbic acid excreted over and above the pre-treatment output has been calculated by deducting the average pre-treatment output from the raised outputs, and the results are shown in the table. In cases 1–3 there was an excess excretion of more than 450 mg. of total ascorbic acid.

An important feature is that the output measured by Roe and Kuether's method rises above the intake. At the same time there was in cases 1, 3, and 4 an increase in the amount but not in the proportion of oxidation products.

When corticotrophin was withheld, in cases 1 and 2, there was a reversal of these changes; because of clinical reactions withdrawal was never continued until the patients returned to a stable urinary output, and it is not known whether the retention of ascorbic acid at this phase would be equal to the excess excretion during the first days of treatment with corticotrophin.

Urinary dehydro-ascorbic acid was significantly increased by corticotrophin ($P = 0·01$) in case 4 but not in cases 1–3.

In group 2 changes in the amount and state of ascorbic acid in the urine are not statistically significant.

In five guineapigs corticotrophin increased the reduced ascorbic acid and oxidation products in the urine (fig. 4). Guineapigs C and D were given corticotrophin 6·66 I.U. hourly for nine hours daily. Guineapig M and two others were given 'Acthar gel' 20 I.U. b.d. Preliminary experiments had indicated that these relatively large doses were necessary to produce changes in the urinary excretion of ascorbic acid in guineapigs.

Guineapigs C and D received ascorbic acid, and the others sodium ascorbate. The increases in excretion were more prolonged than in man and usually persisted throughout the period of administration of corticotrophin. Exceptions were seen in guineapigs on long courses of corticotrophin, when the urinary excretion of ascorbic acid became irregular in the last few days before death (from unknown causes).

Plasma-ascorbic-acid levels were studied in the patients receiving corticotrophin, and the results are shown in figs. 1–3. There is no consistent change with corticotrophin, but there is a tendency in both groups for the level of oxidation products to rise at first and then to fall. The plasma levels estimated by both methods show a fall with continued therapy.

Renal Clearance of Ascorbic Acid.—With the reservation that single determinations may not reflect diurnal changes in plasma, the twenty-four-hour renal clearances of ascorbic acid were increased by at least 50% over the pre-treatment levels during the administration of corticotrophin.

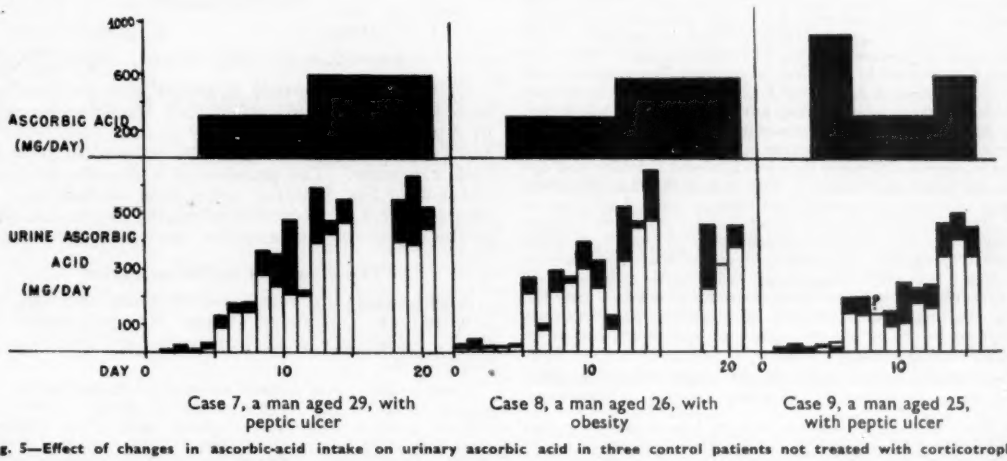

Fig. 5—Effect of changes in ascorbic-acid intake on urinary ascorbic acid in three control patients not treated with corticotrophin.

EFFECTS OF INCREASING ASCORBIC-ACID INTAKE IN CONTROLS

Since the observed changes in the amounts of oxidation products in urine during corticotrophin therapy might be due solely to increased output of ascorbic acid, three patients (cases 7–9) on constant diet were studied at different levels of ascorbic-acid intake. The results (fig. 5) indicate that, when the urine output is increased by raising the intake, the alterations in urine-ascorbic-acid levels are qualitatively similar to those accompanying the administration of corticotrophin; in particular there is an increase in the amount of oxidised ascorbic acid.

Discussion

Our results confirm those of Beck et al. (1951), who found that both corticotrophin and cortisone increased the urinary excretion of ascorbic acid measured by the Roe and Kuether method. The daily intake of ascorbic acid in most of their patients would place them in our "high" and "intermediate" categories.

This increase could be due to diminished utilisation or to excretion of ascorbic acid already present within the cells or on the extracellular fluid. It is unlikely that corticotrophin would produce only a temporary decrease in utilisation, since its other effects are notably increasing in intensity during the stage at which the ascorbic-acid excretion diminishes to the base-line level, and this possibility is certainly excluded as the sole cause in those cases where the urinary output exceeds the intake. The extracellular fluid may be taken to have expanded, and its level of ascorbic acid has usually increased during the stage of increased excretion; hence it will have accumulated ascorbic acid and cannot have been the source of the increase in urinary ascorbic acid. It is therefore most probable that the cells provide the excess ascorbic acid which is excreted. The adrenal glands cannot have been the sole source of the increased excretion of ascorbic acid, since the total amount of ascorbic acid in two human adrenals is about 10 mg.*—far less than the excess of 454–578 mg. excreted in cases 1, 2, and 3 (see table).

Further tentative calculations may be made:

(1) If the concentration of ascorbic acid in saturated human tissues (other than adrenals) is similar to that of the guineapig, it may be taken to be about 200 mg. per litre of intracellular fluid (see Yavorsky et al. 1934). With corticotrophin therapy probably about a litre of water is transferred from intracellular to extracellular fluid (Prunty et al. 1953) and might passively transfer 200 mg. of ascorbic acid; in our highly saturated patients there was an additional approximate 300 mg. of ascorbic acid which would appear to have been actively mobilised from the reserves within the cells by some independent mechanism, presumably dependent on adrenal cortical activity. Support for this view comes from the abrupt decrease in urinary ascorbic acid with cessation of corticotrophin therapy in cases 1 and 2; the magnitude of the change is again greater than could be expected simply from shift of fluid into the cells. It is also of interest that patients with "low" saturation do not show considerable changes in urinary excretion, perhaps because they have no reserves to mobilise.

(2) In group 1 there is evidence for increased conversion of ascorbic acid to the immediate oxidation products judged by the increased difference between Roe and Kuether and dye figures for urine and plasma; only case 4 shows a significant increase in dehydro-ascorbic-acid output (from 2 to 8 mg. a day). The similarity between these changes and those induced by raising the oral intake of ascorbic acid in cases 7, 8, and 9 makes it probable that corticotrophin had produced a "flooding" of the extracellular fluid with ascorbic acid similar to that induced by the increased oral intake; in other words, the increased production of oxidation products does not appear to be a specific effect of corticotrophin or of adrenocortical steroids.

These results do not indicate any change in the amount of ascorbic acid utilised in the adrenal cortex or elsewhere.

*Two determinations of ascorbic acid in human adrenal in this laboratory are: (1) normal adrenal obtained at operation, 80 mg. of ascorbic acid per 100 g.; and (2) adrenal obtained three hours after death, 104 mg. of ascorbic acid per 100 g.

Summary

The amounts of reduced ascorbic acid and its immediate oxidation products in the plasma and urine of patients treated with corticotrophin were determined.

In patients with adequate ascorbic-acid saturation there was an increased urinary output, usually temporary. This increase was probably due to three causes: an increased renal clearance of ascorbic acid; a probable shift of ascorbic acid from cells to extracellular fluid along with the usual shift of water; and another unidentified mechanism causing an additional transfer of ascorbic acid from the cells to extracellular fluid.

In patients with adequate ascorbic-acid saturation there was evidence for increased production of the immediate oxidation products of ascorbic acid. Control studies in patients not receiving corticotrophin indicated that this increase was not a specific effect of corticotrophin or of adrenal cortical steroids.

In patients with low ascorbic-acid saturation there were no such changes when corticotrophin was administered.

In guineapigs with adequate ascorbic-acid saturation corticotrophin produced effects similar to those in adequately saturated patients.

Our thanks are due to the nurses of Holden Metabolic Ward; to the departmental technical staff for analytical assistance; and to the governors of St. Thomas's Hospital for financial assistance from endowment funds. The corticotrophin used in the experiments on guineapigs was supplied by the Medical Research Council.

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XANTHINURIA

AN INBORN ERROR (OR DEVIATION) OF METABOLISM

C. E. DENT G. R. PHILPOT

From University College Hospital, London

URINARY stones formed of almost pure xanthine have been known since 1817 when they were first identified by Marcet. Since that time only 23 have been reported, and we are not aware of any studies undertaken to explain their causation. The presence of a disorder of purine metabolism has, however, often been implied, and the discovery here of a new case of xanthine stone has given us the opportunity to examine the matter further.

The Case and its Investigation

A girl, aged 4½ years and weighing 18·2 kg., was admitted to University College Hospital under Dr. B. E. Schlesinger with hæmaturia and frequency of micturition.

X-ray examination showed no opaque stones, but at the suggestion of Mr. D. R. Davies one of us was called in to consider the possibility of a metabolic cause of her presumed stone formation. Such a cause was thought probable in view of the strong suspicion of the presence of a non-opaque stone,

and in any case Mr. Davies wished to exclude metabolic causes of recurrent stone formation before deciding finally on the future surgical management of the case. The urine was sterile and contained numerous red cells, a few pus cells, a trace of protein, no reducing substances, no excess of calcium, and no excess of cystine or of other amino-acids. A week later a smooth oval stone was passed without complaint by the child and was only recovered on the routine sieving of the urine by the nurse. After this the child's urinary symptoms rapidly improved.

The Stone

The stone was pale brown, smooth, and oval, measuring about $1^1/_2 \times 1 \times 0{\cdot}5$ cm., and weighing about 0·9 g. It felt light in proportion to its size and was easily cut with a razor, showing on section many concentric rings of slightly varying shades of brown. It was translucent to X rays. When it was laid on various parts of the patient's abdomen, X rays failed to reveal it. When it was placed on an X-ray plate with cystine stones of similar size, it appeared in the radiograph much less dense than the cystine stones.

Preliminary analyses showed faint traces of calcium and magnesium but no other common inorganic constituents of urinary stones; it was moreover almost ash-free, the ash from 10 mg. of the stone being unweighable on our balance, which was sensitive to 0·2 mg. It was first thought to be of uric acid, but it gave a reddish-brown colour in the murexide test quite unlike that given by uric acid and rather unlike that given by pure xanthine. In view of the possibility that it might be of fibrin, a sample was hydrolysed, and the product was run on paper chromatograms against various quantities of hydrolysates of fibrin and of collagen. These revealed the presence of a large quantity of glycine. There were also traces of other amino-acids, such as would be liberated if protein were present to the extent of about 5% of the weight of stone. The liberation of glycine on hydrolysis, together with the earlier anomalous murexide test, suggested that a purine was the major constituent of the stone. One-way paper chromatograms for purines were then prepared according to the method described by Vischer and Chargaff (1948) using as solvent 4 parts by volume of butyl alcohol, 1 part of ethylene glycol, and 1 part of water in an atmosphere of ammonia. As markers, adenine, guanine, hypoxanthine, xanthine, and uric acid were run against material scraped off the stone. These left no doubt that the stone matched exactly the behaviour of pure xanthine.

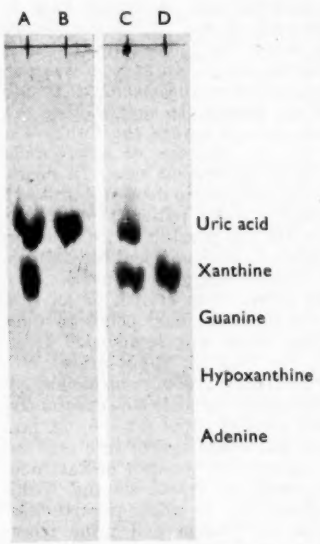

Fig. 1—One-way chromatograms of urine developed to reveal purines: A, normal urine 50 µl. + xanthine 25 µg.; B, normal urine 50 µl.; C, patient's urine 50 µl. + uric acid 25 µg.; D, patient's urine 50 µl.

The Urine

The patient's urine was then examined directly for purines by the same chromatographic technique used for identifying the stone. This revealed (fig. 1) that the urine contained large quantities of xanthine. Of special interest was the absence of detectable quantities of uric acid. Several specimens of urine were seen to deposit a white fluffy precipitate soon after being passed. In one case this was separated and examined chromatographically and shown to be pure xanthine. The quantity of xanthine excreted, as determined by the colorimetric method of Williams (1950),* was about 176 mg. in twenty-four hours, or 607 mg. of xanthine for every gramme of creatinine. (The output of xanthine determined by us in this way in a female adult control was 25 mg. in twenty-four hours or 35 mg. per gramme of creatinine.) Williams found that the normal output of xanthine in adults was 14 mg. in twelve hours. In our patient the output of xanthine was clearly similar in amount to the normal output of uric acid, suggesting that in her case xanthine, not uric acid, was the end-product of purine metabolism. Traces of uric acid may have been present,

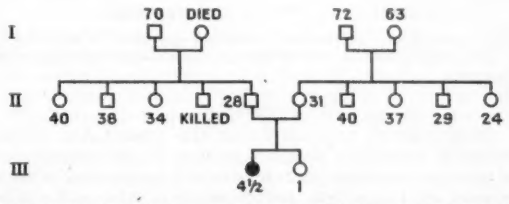

Fig. 2—Patient's family tree. Urine was tested chromatographically in all living relations shown. In all cases except patient urine contained normal amount of uric acid and no xanthine.

however; for when the method of Folin and Trimble (1924) was used the urine appeared to contain about 30 mg. of uric acid per day or 107 mg. per gramme of creatinine.

A specimen of urine collected six weeks later, when the patient was enjoying perfect health, again showed chromatographically the presence of large amounts of xanthine and no uric acid. Further to confirm the nature of the metabolic disorder, a five-day sample of the patient's urine was collected and the whole volume worked up for xanthine by copper precipitation and subsequent recrystallisation by a method similar to that described by Krüger and Salomon (1898). A yield of 0·16 g. of crude xanthine was obtained, identical chromatographically with a commercially available sample. On recrystallisation it gave on analysis C, 39·1; H, 2·6; N, 36·3. $C_5H_4N_4O_2$ requires C, 39·5; H, 2·6; N, 36·8.

The Plasma

Plasma samples were examined chromatographically for purines. Normal plasma (125 µl.), ultrafiltered and desalted as for amino-acid analysis (Dent 1952), readily showed the presence of one purine only, uric acid. The patient's plasma showed neither uric acid nor xanthine, even when 625 µl. was analysed on one chromatogram. The limit of detection is at about 5 µg.; hence there was less than about 1 mg. per 100 ml. of either uric acid or xanthine in her plasma. The standard chemical analysis by Folin and Trimble's (1924) method gave the result 0·5 mg. per 100 ml. of uric acid. We have no method yet for directly determining plasma xanthine.

The Patient's Family

The patient's family, rather conveniently healthy, prolific, and coöperative, was then investigated (fig. 2). Urine was obtained from her only sister, father, mother, five aunts, two surviving uncles, and three surviving grandparents. Chromatographic analysis showed that they all excreted normal quantities of uric acid, and in no case was xanthine detected. The patient's mother and father were not related to each other. None of the relatives gave a history suggestive of renal stones.

* This method determines xanthine + guanine together. Our chromatographic analyses lead us to suppose that guanine is absent.

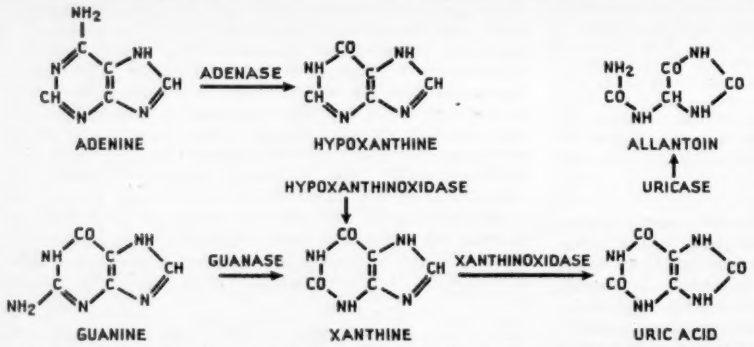

Fig. 3—Metabolism of purines: urinary end-product is allantoin in most mammals, uric acid in man, other primates, and Dalmatian coach-hounds, and apparently entirely xanthine in present patient.

Discussion

It appears at first sight that the patient has a considerable metabolic defect whereby, in the metabolism of purines, xanthine accumulates and is excreted as such instead of being first converted into uric acid. The known course of purine metabolism is shown in fig. 3, and it is an attractive hypothesis that the patient was born lacking almost entirely the enzyme xanthine oxidase normally present in the liver and presumed to be necessary for the formation of uric acid. If so, this condition fits well into the definition of an "inborn error of metabolism" originally proposed by Garrod (1923). However, a longer follow-up is necessary to confirm the constancy of the defect and that it is therefore "inborn."

Our failure to detect xanthine in the plasma suggests that the plasma-xanthine level is kept low by a high renal clearance. It is therefore faintly possible that the patient's disorder is not an "error of metabolism" due to absence of xanthine oxidase but a "deviation of metabolism" (Dent 1950) whereby, owing to a defect of kidney function, the xanthine circulating in the plasma is excreted in the urine too rapidly to allow much of it to be metabolised by the xanthine oxidase in the liver. Such a mechanism has been suggested in the cases of uric-acid excretion by Dalmatian coach-hounds (Friedman and Byers 1948) and of cystine excretion by human cystinurics (Dent and Rose 1951, Fowler et al. 1952). These alternative mechanisms for explaining our present data, so far as they go, are shown diagrammatically in the accompanying table. It is obvious how future work should be directed to settle this matter more finally. The presence of traces of uric acid in the patient's plasma and urine (detected chemically but not confirmed chromatographically) is a point slightly in favour of the "deviation" mechanism.

POSSIBLE MECHANISMS OF PRODUCTION OF XANTHINURIA

(1) Metabolism in the normal human

Xanthine (in blood) —Xanthine oxidase→ Uric acid (in blood)

traces only

kidney → Xanthine (in urine) traces only

kidney → Uric acid (in urine) large quantities

(2) Abnormal "inborn error of metabolism" (Garrod)

Xanthine (in blood) —Metabolic block→ No uric acid formed or excreted

large quantities

kidney → Xanthine (in urine) large quantities

(3) Abnormal "deviation of metabolism" (inborn or acquired)

Xanthine (in blood) traces only —Xanthine oxidase→ Uric acid (in blood) traces only

excessive kidney excretion → Xanthine (in urine) large quantities

kidney → Uric acid (in urine) traces only

Probably all cases of "xanthinuria" will show a great tendency to form xanthine stones. Not only is xanthine exceedingly insoluble but in our patient it readily precipitated from the fresh urine on cooling. A plausible prophylactic treatment would be to take alkalis by mouth and a high water intake. Rough tests showed that 100 ml. of normal urine at 26°C dissolved 6·7, 6·5, and 16·5 mg. of xanthine at a pH of 5·8, 7·0, and 8·1 respectively. With an output of 180 mg. a day in a volume of 500 ml. the urine is greatly oversaturated.

From the purely clinical standpoint it is interesting to note how comparatively simple is the technique for detecting this disorder (fig. 1). In any future case of renal symptoms in the absence of X-ray evidence for stone a positive urine test for xanthine, with low uric-acid levels in blood and urine, will give strong presumptive evidence for the presence of a xanthine stone. The disorder may be found more often in future when looked for in this way. There seem to be no specific clinical signs, for the patient appears otherwise in excellent health. According to Kretschmer (1937) a xanthine stone may first cause symptoms in adult life, though it does so more commonly at 4–15 years of age. If it is genetically determined, the family study (fig. 2) suggests that it is inherited as a mendelian recessive. In such a case one would expect a high incidence of cousin marriages among the parents. It is not yet possible to say whether the formation of a xanthine stone is always the result of a constant xanthinuria in the absence of appreciable quantities of uric acid as in the present case. In Pearlman's (1950) case the urine was said to deposit "urates" (identified microscopically) and the patient's blood-uric acid level was said to be 4·2 mg. per 100 ml., unlike the low figure (0·5 mg. per 100 ml.) in the present case, which was supported also by chromatographic evidence. The case reported by Israel (1901) was stated to have a "uric acid stone" in the opposite renal pelvis to that from which the xanthine stone was removed. It is fascinating to consider the case of "hypo-uricæmia" reported by Praetorius and Kirk (1950), who described the accidental discovery of a healthy male who constantly had a low blood-uric acid level of about 0·2–0·6 mg. per 100 ml. but excreted normal quantities of uric acid in his urine. Presumably his disorder was not of xanthine metabolism but, as suggested by Praetorius and Kirk, of high renal uric-acid clearance. It would nevertheless be interesting to explore his plasma and urine more fully for purine derivatives.

Summary

A new case of xanthine stone in a girl, aged $4^1/_2$ years, is reported.

The patient constantly excreted large quantities of xanthine and only traces, if any, of uric acid. Her blood uric-acid level was very low. The xanthine was identified by isolating it in the pure state from the urine.

No other cases were found in her family.

This condition, for which the name " xanthinuria " is suggested, can readily be detected by paper chromatography of the urine.

Xanthinuria is presumed to be an inborn error (or deviation) of metabolism, but the mechanism of its production is not yet certain.

We wish to thank Dr. B. E. Schlesinger for permission to publish this case, Dr. F. V. Flynn for the uric-acid determinations, and Mr. E. W. Brentnall (house-physician) for his great help in organising the investigations.

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POSTURAL ISCHÆMIA AND BLOOD-PRESSURE

G. E. HALE ENDERBY
M.A., M.B. Camb., F.F.A. R.C.S., D.A.
ANÆSTHETIST, QUEEN VICTORIA HOSPITAL, EAST GRINSTEAD, SUSSEX

THE effects of posture on blood-flow, combined with a low systolic blood-pressure, induce an ischæmia of the raised end of the body. This postural ischæmia enables many surgical operations to be performed more easily and more skilfully with very little blood-loss (Enderby 1950, Shackleton 1951, Enderby and Pelmore 1951).

At first it was thought that postural ischæmia was due to very adequate venous drainage associated with an arterial systolic pressure of about 60 mm. Hg. Undoubtedly, venous drainage is important in reducing surgical hæmorrhage; and when it cannot be obtained—e.g., in the region of the lumbar vertebræ with the patient prone—venous bleeding may be troublesome even with a systolic pressure as low as 55 mm. Hg. Similarly, in the reversed Trendelenburg position with hypotension the feet are red and congested, with prominent veins, and will bleed if incised, whereas the face is pale, with the veins collapsed and empty and there is hardly any bleeding. But in addition to venous drainage by posture, the hydrostatic effect of gravity on the column of blood above or below heart level must be considered, for this causes a gradient of arterial pressure throughout the body. For every 15 inches of vertical height of the operation site above heart level there is a reduction in the *local* blood-pressure of about 30 mm. Hg. Conversely, when the site is below heart level, the pressure is raised by a similar amount. This effect of gravity on blood-pressure is of paramount importance in reducing surgical hæmorrhage.

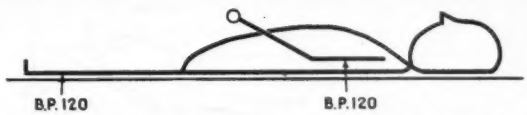

Fig. 1—Conscious adult male. Blood-pressure in arm at heart level is same as that in calf in horizontal position.

Local Blood-pressure

Hill and Flack (1909) and Hill (1909) demonstrated the effects of gravity on a vertical column of blood, and showed how blood-pressures differed by the hydrostatic pressure of the column of blood separating the points of measurement. Loman et al. (1936) showed that in the horizontal posture, when gravity is no longer effective, the blood-pressure recorded intra-arterially is the same in both arm and leg. When the conscious human body assumes the erect position from the horizontal, the blood-pressure *in the arm* remains the same (Best and Taylor 1945). When the blood-pressure is recorded in the arm it is at heart level. *At heart level* the blood-pressure remains constant, irrespective of posture; but elsewhere, unless the body is horizontal, there is a gradient of arterial pressure. This has been confirmed by personal observation on both conscious and unconscious people.

Figs. 1 and 2 illustrate the changes of blood-pressure in a conscious man lying down and standing up. The pressure at heart level is the same in both positions. The pressure in the arm is the same as that in the calf when the body is horizontal, but there is a great increase in the blood-pressure in the calf on standing. Pressures were measured by palpation of the artery distal to a cuff inflated at the point indicated. The distance between the arm and the calf was about 38 inches, which would indicate a difference of about 76 mm. Hg on the basis of 30 mm. for every 15 inches vertical height. This corresponds almost exactly to the observed difference (80 mm. Hg) in the manometer readings.

The most important feature, the maintenance of blood-pressure at heart level, is achieved by vasomotor control ensuring an adequate venous return to the heart under all conditions. An adequate venous return depends on vasoconstrictor tone maintaining the lumen of dependent arterioles against the dilating effect of gravity. In this way the circulation is maintained in dependent parts, and an adequate venous return to the heart flows through the main venous channels, which are provided with valves which assist the return against gravity.

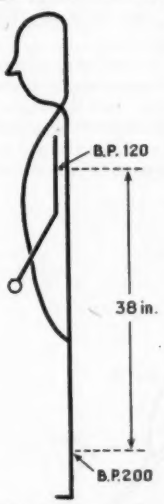

Fig. 2—Same person as in fig. 1 but standing upright. Blood-pressure at heart level is unchanged but that in calf has risen 80 mm. Hg.

The heart can deliver an adequate blood-supply to the brain against the gravity of an upright position, but the blood-pressure in the brain is reduced owing to its elevated position, which accounts for a fall of about 30 mm. Hg. An indication of the pressure difference between heart and brain was obtained by measuring the pressure in the arm at heart level and again after raising the arm so that the cuff was on a level with the temporal region of the head. When this was done with the person upright, there was a fall in pressure of 30 mm. Hg; but, when similar readings were

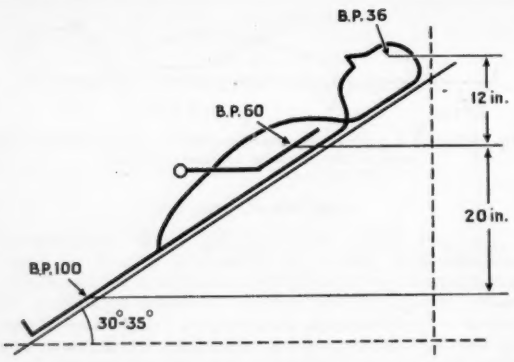

Fig. 3—Anæsthetised female in 30°–35° reversed Trendelenburg position after administration of hexamethonium bromide 70 mg. Blood-pressure at heart level 60 mm. Hg, in calf 100 mm. Hg, and in brain (calculated) 36 mm. Hg.

obtained with the person horizontal, there was no difference at all.

Blood-pressure on the Operating-table

A similar gradient of pressure was observed in the unconscious anæsthetised patient both before and after the administration of hexamethonium. Fig. 3 illustrates this gradient in an anæsthetised woman tipped into a 30°–35° reversed Trendelenburg position and given hexamethonium bromide 70 mg. intravenously. The systolic pressure at heart level, now no longer constant, has fallen to about 60 mm. Hg. In the leg the systolic pressure is 100 mm. Hg, and the vertical distance between the cuffs 20 inches. The approximate elevation of the head above heart level when the body is tipped into a 30°–35° reversed Trendelenburg position is 12 inches. With this elevation of the head and a systolic pressure of 60 mm. Hg at heart level, it has been calculated, the cerebral blood-pressure will be about 36 mm. Hg. This gradient of pressure has been confirmed again by measuring the pressure in the arm at heart level, and after raising the limb to the level of the brain.

Fig. 4 illustrates a similar gradient in the head-down or Trendelenburg position. The same factors apply here as in the reversed Trendelenburg position, but the basic level of blood-pressure at the heart is higher because the venous return is assisted by gravity. The elevation of the legs induces a local ischæmia adequate to minimise

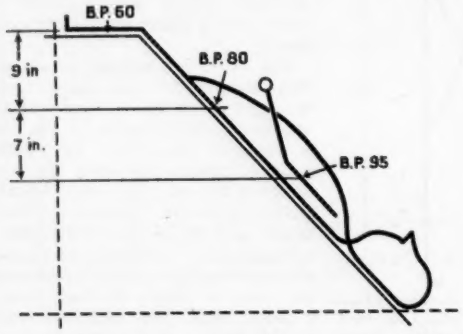

Fig. 4—Anæsthetised female in 40° Trendelenburg position after administration of hexamethonium bromide 50 mg. Blood-pressure at heart level 95 mm. Hg, in calf 60 mm. Hg, and in pelvis (calculated) about 80 mm. Hg.

surgical hæmorrhage here, and pelvic operations cause less bleeding in this position, even though the blood-pressure at heart level is not below 95 mm. Hg. In this position the blood-supply to the heart and brain is never so critical as in the reversed Trendelenburg, and the safety margin is therefore greater.

The control of the local circulation at the site of operation is perhaps best illustrated in the hand, which can be raised high above heart level. Fig. 5 shows the reduction of local blood-pressure by this means to about 15 mm. Hg. At this pressure the return of circulation after the removal of an exsanguinating tourniquet is very slow indeed. Thus all bleeding points can be secured easily, and clot formation in relaxed vessels at low pressure ensures an effective hæmostasis. With the arm in this position, the blood-pressure is allowed to return slowly; thus hæmatomata are avoided and postoperative swelling and œdema minimised. This is a great advantage after excising the palmar fascia for Dupuytren's contracture and for other operations in the hand and forearm where postoperative bleeding may be disastrous.

These figures show that the heart-pressure is often considerably higher than the blood-pressure at the site of operation. Furthermore, vital organs, such as the kidney and liver, are at a higher pressure than the heart when in the reversed Trendelenburg position. Indeed it appears unlikely that the pressure in these organs in the reversed Trendelenburg position is ever as low as the minimum

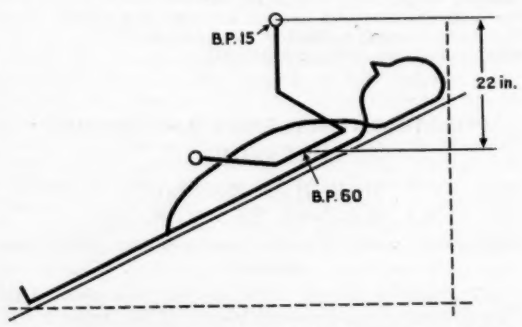

Fig. 5—Anæsthetised male after administration of hexamethonium bromide 30 mg. Blood-pressure at heart level 60 mm. Hg and in palm of raised hand (calculated) 15 mm. Hg.

heart-pressure of 60 mm. Hg. On the other hand, the cerebral circulation must be reduced to a very fine margin when its pressure is 35–40 mm. Hg. At this pressure capillary bleeding from skin and mucosa is almost non-existent; but, even so, pulsation of the brain can be easily observed, and the circulation in this organ appears to be sufficient. No quantitative estimations of cerebral blood-flow under such conditions have been reported. Quantitative estimations made in conscious human volunteers (Kety and Schmidt 1948) showed significant changes due to lack of oxygen, increase of carbon dioxide, &c. Such changes are probably mediated by reflexes of the vasodilator nerves; but, when vasomotor paralysis inhibits all such compensatory reflexes, cerebral blood-flow must depend almost entirely on blood-pressure.

Implications

From a consideration of these figures it becomes obvious that the essential feature of postural ischæmia —i.e., a local reduction of blood-pressure by gravity— is present in the conscious human before the administration of an anæsthetic or an autonomic ganglion paralysant. The postural ischæmia seen in the operating-theatre has become *apparent* only because of the fall in

blood-pressure at heart level. In the elevated regions the local pressure falls to a figure where capillary bleeding is so slow that it is no longer troublesome. A local pressure of 35–45 mm. Hg is often necessary for this, especially in highly vascular tissue such as skin and mucosa. On the other hand, experience has shown that 55–65 mm. Hg is the minimum systolic pressure below which it is dangerous and profitless to proceed. This pressure has always been measured *at heart level* on the arm. At the same time, it was realised that a careful observation of the site of operation, of the nature of the bleeding, its colour, &c., was as important as the blood-pressure level (Enderby and Pelmore 1951), and it becomes obvious now why the local effect is of even greater significance than the blood-pressure.

Thus the local pressure at the site of operation can be reduced below the level where bleeding is troublesome, while at the same time the pressure at heart level is maintained at some figure which experience has shown to be reasonably safe. A systolic pressure of 60 mm. Hg was stated by Dr. John Gillies (personal communication 1949) to be adequate for cellular respiration and metabolism in all vital organs, provided the blood was well oxygenated and that vasodilatation was ensured. From the observations presented here it can be deduced that (1) the *local* systolic blood-pressure can be considerably lower than 60 mm. Hg, which apparently does not damage the brain; and (2) in the reversed Trendelenburg position other vital organs are at a pressure somewhat above that of the heart.

Gillies's observations therefore require qualification. A systolic blood-pressure level of 60 mm. Hg *at the heart*, although adequate for all metabolic requirements when the body is horizontal, is not necessarily so when the body is tilted. Posture may reduce the local blood-pressure in the elevated regions to such an extent that local circulatory requirements cannot be met. However, this is unlikely to cause a dangerously low pressure in any vital organ except the brain, and experience has shown that this organ will tolerate a lower pressure than was at first believed possible. A pressure of at least 60 mm. Hg must always be maintained at heart level.

Summary

Vasomotor control maintains the blood-pressure constant *at heart level* in the conscious human irrespective of posture.

Elsewhere gravity induces a gradient of arterial pressure when the body is tilted. The elevated regions are reduced in pressure by 30 mm. Hg for every 15 inches of vertical height above heart level. The pressure in dependent regions is raised by a similar amount.

This same gradient exists in the anæsthetised patient after autonomic paralysis with hexamethonium.

For adequate control of surgical hæmorrhage it may be necessary to reduce the blood-pressure *at the site of operation* to 35–45 mm. Hg. This constitutes the essential feature of "postural ischæmia." A pressure of at least 60 mm. Hg must always be maintained at heart level.

In a reversed Trendelenburg position of about 30°–35° the cerebral blood-pressure is estimated at 35–40 mm. Hg when the heart pressure is 60 mm. Hg. Other vital organs are at a pressure higher than that at heart level.

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TRANSFER TO INSULIN ZINC SUSPENSION

M. G. FITZGERALD
M.B. Birm., M.R.C.P.
SENIOR REGISTRAR

P. A. THORN
M.D. Lond., M.R.C.P., D.C.H.
SENIOR REGISTRAR

J. M. MALINS
M.B. Birm., M.R.C.P.
ASSISTANT PHYSICIAN

From the Diabetic Clinic, General Hospital, Birmingham

FROM their work on 300 diabetic patients Hallas-Møller et al. (1952) predicted that 90% of all those needing insulin could be controlled with a single daily injection of one of the insulin zinc preparations elaborated at the Novo Laboratories of Copenhagen. The obvious advantages of 'Insulin Zinc Suspension Lente' (I.Z.S. lente), containing 30% amorphous and 60% crystalline zinc insulin, are the stability of such a mixture of a slow and rapid acting insulin, and the freedom from local reactions.

Clinical trials of I.Z.S. lente in this country have been reported by Lawrence and Oakley (1953), Oakley (1953), Murray and Wilson (1953), and Nabarro and Stowers (1953a and b).

The object of the investigation described here was to determine the effect of transferring patients already receiving insulin to an equivalent dose of I.Z.S. lente. As this change often has to be made without admission of the patient to hospital it is important to know whether diabetic control is likely to be altered. Oakley described 15, and Murray and Wilson 21, cases in which this comparison was made; their results are shown in table I.

In most of these patients the standard of initial biochemical control was high. The results shown in table I are impressive in that control of the diabetes was improved in 20 out of a total of 36 cases, and remained the same in 9 others. In only 3 cases was control worse.

Methods and Results

We have studied 30 patients; 24 were outpatients and 6 were inpatients.

Accurate judgment of biochemical control of outpatients is difficult. Therefore, we admitted outpatients for two separate thirty-six-hour periods of assessment on the same days of two successive weeks. While in hospital the patients got up, dressed, and went to bed at their normal times. They were given a day's work, similar to that of their usual day, and were allowed to leave the hospital to take exercise. They took meals at

TABLE I—RESULT OF TRANSFER FROM OTHER INSULINS TO I.Z.S. IN SAME DOSE

Author	Other insulins	No. of cases	Result of transfer to I.Z.S.			
			Better	No change	Worse	Indefinite
Oakley (1953)	S.I. and P.Z.I.	6	4	1	1	—
	Globin	1	—	1	—	—
	P.Z.I.	6	5	—	—	1
	S.I. and S.I.	2	1	—	—	1
Murray and Wilson (1953)	S.I. and P.Z.I.	15	8	7	—	—
	Globin	1	—	—	1	—
	P.Z.I.	3	—	—	1	2
	S.I. and S.I.	2	2*	—	—	—
Total	.. ..	36	20	9	3	4

* Murray and Wilson state no conclusions, but the figures given show that I.Z.S. has had the stronger insulin action throughout the day.

their usual time, and the total dietary carbohydrate was the same on both occasions.

During the first stay they took their usual insulin, and on the day of discharge they had I.Z.S. They then returned to work, taking I.Z.S. each day and were readmitted after they had been on I.Z.S. for six days.

On each occasion the assessment of control began at 8 A.M. on the day after admission. Two-hourly blood-sugar estimations were done over twenty-four hours, and twelve-hour specimens of urine were collected from 8 A.M. to 8 P.M. and 8 P.M. to 8 A.M.

The in-patients were assessed in the same way.

The results of these tests are shown in table II. The results are summarised in table III.

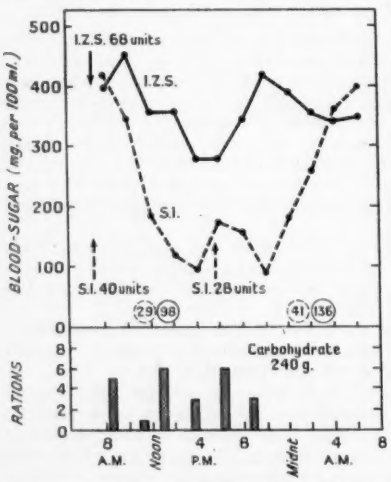

Fig. 1—Case 28 (woman, aged 39). Transfer from two doses of S.I. Poor initial biochemical control.

In figs. 1–3 the numbers enclosed in circles indicate glycosuria expressed as grammes per 12 hours (8 a.m. to 8 p.m. and 8 p.m. to 8 a.m.). Ration = 10 g. of carbohydrate.

TABLE III—SUMMARY OF RESULTS OF TRANSFER FROM OTHER INSULINS TO I.Z.S.

Other insulins	No. of cases	Result of transfer		
		Better	No change	Worse
S.I. and P.Z.I. ..	21	4	12	5
Globin	1	—	—	1
S.I. and S.I. ..	8	—	4	4
Totals ..	30	4	16	10

Discussion

Table III shows that control was unchanged in over half and worse in a third, on transfer to I.Z.S. This is in contrast with the improvement reported in the majority by other workers (see table I). We think that two factors may explain this difference—the initial type of insulin and the degree of control.

TYPE OF INSULIN

Transfer from Soluble Insulin Alone (see fig. 1)

Of 8 patients whom we transferred from two doses of soluble insulin (S.I.) 4 developed severe diabetic symptoms (cases 26–29). This deterioration of control on transfer of patients from two doses of S.I. to a longer-acting insulin has often been reported, and precautions are usually taken to avoid it. I.Z.S. provides no exception to this rule. This deterioration did not occur in the three inpatients whom we transferred from S.I. alone (cases 23–25).

Transfer from Mixtures of S.I. and P.Z.I.

The transfer in this group caused little disturbance except in cases 18 and 21. Case 17 was much worse biochemically, but the patient did not develop symptoms. These 3 patients were each having a S.I./P.Z.I. mixture in a 2 : 1 or higher ratio. In Oakley's series the only patient who was on a high ratio of S.I./P.Z.I. was alone in being worse on transfer to I.Z.S. It seems reasonable to suppose that some patients who need an S.I./P.Z.I. mixture in higher proportions than 2 : 1 will need a higher proportion of 'I.Z.S. Amorphous' than is contained in I.Z.S. lente.

Many of the cases which had been treated with a mixture of S.I. and P.Z.I. in proportions of less than 2 : 1, or in equal proportions, showed a close similarity in the shape of their twenty-four-hour blood-sugar curves (see fig. 2).

Of the 4 cases in this group which we classed as better, cases 9 and 11 were both well controlled before admission (see table II), but case 9 produced high figures on both test days and case 11 on her first test day. This suggests that admission to hospital upset the control of these 2 patients and throws doubt on the conclusion that their condition was improved by transfer to I.Z.S.

DEGREE OF CONTROL

Another difference between our series and those we have quoted in table I is that in 10 of our patients initial clinical control of the diabetes was poor. Furthermore, in the 17 with good clinical control the blood-sugar levels were mostly higher than those reported by Oakley (1953) and Murray and Wilson (1953). This indicates poor biochemical control; and most of our cases were selected for this reason.

Those who were both clinically and biochemically well controlled before transfer (cases 6, 9, 11, 23–25) remained satisfactory after transfer, but generally speaking transfer to I.Z.S. is more likely to be considered in those who are not well controlled. Our results suggest that the transfer of cases with indifferent biochemical control to an equal dose of I.Z.S. lente is likelier to produce deterioration than improvement. An increase in the total dose of insulin will often be required at the time of transfer. This is certainly so with patients who have been on two doses of

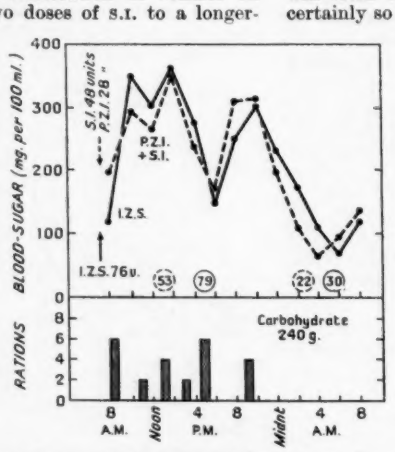

Fig. 2—Case 13 (woman, aged 27). Transfer from S.I./P.Z.I. mixture. Poor initial biochemical control.

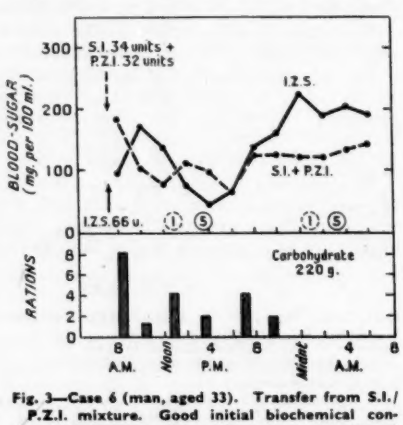

Fig. 3—Case 6 (man, aged 33). Transfer from S.I./P.Z.I. mixture. Good initial biochemical control. Subsequently 2 rations were transferred from breakfast to lunch and 1 to tea, with return to excellent control.

TABLE II—DATA OF 30 CASES TREATED WITH (A) SOLUBLE INSULIN, PROTAMINE ZINC INSULIN, OR GLOBIN INSULIN, AND SUBSEQUENTLY WITH (B) INSULIN ZINC SUSPENSION

Case no.	Age and sex	Duration of diabetes (yr.)	Dietary carbohydrate (g.)	Mean of six afternoon outpatient blood-sugar levels (mg. per 100 ml.)*	Insulin (units)	Clinical control: good (G), fair (F), poor (P) †	Mean of two-hourly blood-sugar levels (mg. per 100 ml.)	Max. variation of blood-sugar (mg. per 100 ml.)	Result of change to I.Z.S.‡
1	61 F	11	180	298	S.I. 28 P.Z.I. 28	P (D)	217	245	
					I.Z.S. 56	P (D)	244	125	No change
2	58 M	2	240	254	S.I. 32 P.Z.I. 32	P (D, H)	261	189	
					I.Z.S. 64	F	200	273	No change
3	49 M	3	250	360	S.I. 32 P.Z.I. 32	G	156	135	
					I.Z.S. 64	G	200	145	No change
4	70 M	5	180	I.P.	S.I. 12 P.Z.I. 12	G	219	70	
					I.Z.S. 24	G	232	126	No change
5	34 M	6	290	I.P.	S.I. 24 P.Z.I. 24	P (D)	304	136	
					I.Z.S. 48	P (D)	299	161	No change
6	33 M	21	220	176	S.I. 34 P.Z.I. 32	G	116	123	
					I.Z.S. 66	G	146	182	No change
7	17 F	2½	240	240	S.I. 48 P.Z.I. 44	G	328	160	
					I.Z.S. 92	G	311	198	No change
8	32 M	5	210	304	S.I. 40 P.Z.I. 36	P (D)	225	170	
					I.Z.S. 76	P (D)	286	175	Worse
9	28 F	2	220	188	S.I. 28 P.Z.I. 24	G	292	358	
					I.Z.S. 52	G	255	246	Better
10	28 M	1¼	380	313	S.I. 24 P.Z.I. 20	P (D)	220	349	
					I.Z.S. 44	P (D)	232	208	No change
11	28 F	8	170	203	S.I. 28 P.Z.I. 20	G	281	195	
					I.Z.S. 48	G	158	211	Better
12	45 F	9	220	293	S.I. 40 P.Z.I. 28	G	220	148	
					I.Z.S. 68	G	227	155	No change
13	27 F	11	240	227	S.I. 48 P.Z.I. 28	G	211	288	
					I.Z.S. 76	G	218	287	No change
14	21 M	5	270	321	S.I. 48 P.Z.I. 48 S.I. 24	G	231	285	
					I.Z.S. 120	G	218	140	Better
15	53 M	3	240	I.P.	S.I. 32 P.Z.I. 20	G	126	166	
					I.Z.S. 52	P (D)	267	193	Worse
16	66 F	8	140	315	S.I. 16 P.Z.I. 8	P (D)	276	150	
					I.Z.S. 24	P (D)	266	187	No change
17	14 F	1½	260	326	S.I. 56 P.Z.I. 28	G	273	262	
					I.Z.S. 84	G	333	162	Worse
18	21 M	5	280	380	S.I. 40 P.Z.I. 20	P (D, H)	251	156	
					I.Z.S. 60	P (D)	—§	—§	Worse
19	28 F	5	240	247	S.I. 36 P.Z.I. 20				
					S.I. 20	P (D, H)	259	263	
					I.Z.S. 76	P (D)	245	209	No change
20	35 M	5	270	291	S.I. 44 P.Z.I. 16	P (D, H)	181	294	
					I.Z.S. 60	F (H)	190	151	No change
21	40 M	18	350	218	S.I. 20 P.Z.I. 10				
					S.I. 10	F (D, H)	236	193	
					I.Z.S. 40	P (D)	—‖	—‖	Worse
22	38 F	9	200	240	Globin 28	G	293	114	
					I.Z.S. 28	P (D)	348	200	Worse
23	69 M	1	180	I.P.	S.I. 20 S.I. 20 S.I. 20	G	154	104	
					I.Z.S. 60	G	141	168	No change
24	50 M	5	200	I.P.	S.I. 30 S.I. 30	G	213	165	
					I.Z.S. 60	G	224	99	No change
25	52 M	3	230	I.P.	S.I. 36 S.I. 36	G	151	130	
					I.Z.S. 72	G	177	124	No change
26	42 F	19	150	168	S.I. 28 S.I. 18	G	204	241	
					I.Z.S. 46	P (D)	224	365	Worse
27	45 M	19	260	190	S.I. 28 S.I. 20	F (H)	209	350	
					I.Z.S. 48	P (D)	337	200	Worse
28	39 F	9	240	233	S.I. 40 S.I. 28	P (D)	234	330	
					I.Z.S. 68	P (D)	355	170	Worse
29	46 F	23	120	291	S.I. 25 25	G	186	266	
					I.Z.S. 50	P (D)	329	134	Worse
30	10 M	3	230	155	S.I. 36 36	F (H)	127	285	
					I.Z.S. 72	F (H)	156	352	No change

* These figures are the mean of the last six estimations made at routine outpatient visits. The specimens were taken in the early afternoon, after the midday meal. I.P. = inpatient.

† Patients classed as having good clinical control had for the last year been free from thirst, polyuria, and pruritus; they felt well, had a steady weight, and did not have frequent hypoglycæmia. D = diabetic symptoms. H = hypoglycæmia.

‡ We have described patients as worse when either they developed diabetic symptoms which were not present before, or the mean blood-sugar level rose by 50 mg. or more per 100 ml. We have described patients as better when the mean blood-sugar level and the maximum variation both fell.

§ Ketosis developed after two days.

‖ Severe symptoms developed, and the dose of I.Z.S. had to be increased.

soluble insulin, and probably so when the proportion of S.I. to P.Z.I. is high. In this latter group the proportion of I.Z.S. amorphous to I.Z.S. crystalline may need to be changed. Our experience with outpatients not included in this series has confirmed these views.

In patients with strict biochemical control the distribution of dietary carbohydrate is likely to need alteration at the time of transfer; less carbohydrate will be required at breakfast and more at lunch and tea (see fig. 3). When biochemical control is poor, alteration of the diet is less urgent but is likely to be necessary later.

Summary

Of 30 cases of diabetes mellitus transferred from another form of insulin to an equal dose of insulin zinc suspension lente, a third were less well controlled, while in half the control was unchanged.

Transfer to insulin zinc suspension lente from other insulin is not free of risk.

We wish to thank Dr. P. W. S. Blake and Dr. P. R. Knight for their help with the nocturnal blood-sugar estimations; Dr. R. Gaddie and Mr. Garfield Thomas for the biochemical results and helpful criticism; and others who have helped in various ways. Generous supplies of insulin were provided by Evans Medical Supplies and Burroughs Wellcome & Co.

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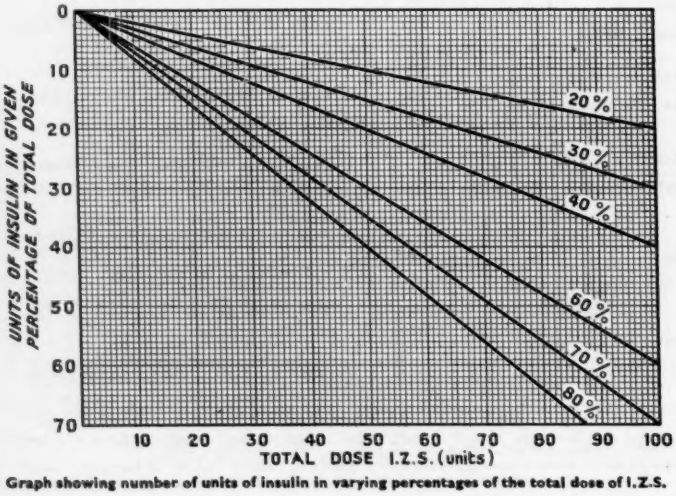
PRESCRIBING INSULIN ZINC SUSPENSION MIXTURES

P. A. THORN
M.D. Lond., M.R.C.P., D.C.H.
SENIOR REGISTRAR
From the Diabetic Clinic, General Hospital, Birmingham

IN the treatment of diabetic patients with insulin zinc suspension it is likely that various proportions of 'I.Z.S. Amorphous' (I.Z.S. [A]) and 'I.Z.S. Crystalline' (I.Z.S. [C]) will be required. In previous reports (Nabarro and Stowers (1953a and b)) and in the manufacturers' literature it is suggested that mixtures of the two should be prescribed as a given proportion of 'I.Z.S. Lente' to one of its two ingredients (1 : 1, 2 : 1, &c.). When the mixture is described in this way it is difficult to calculate the exact dose of each type of insulin which is being ordered.

I.Z.S. lente is a mixture of known percentage: 30% of I.Z.S. (A) and 70% of I.Z.S. (C); therefore it seems logical that one should think of other mixtures in the same terms. With the aid of a graph (see figure) the amount of each type of insulin in a given dose of I.Z.S. lente can be seen; the exact dose of each type of insulin in mixtures of different percentages is also clear. It is then simple to calculate how much I.Z.S. (A) or I.Z.S. (C) should be added to a dose of I.Z.S. lente to make mixtures of other percentages. The prescriber will then know the number of units of each type of insulin which he is ordering.



Graph showing number of units of insulin in varying percentages of the total dose of I.Z.S.

I am most grateful to Mr. T. F. Dee for reproducing the graph.

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A FATAL CASE OF SODIUM NITRITE POISONING

G. M. G. BARTON
B.Sc., M.B. Lond.
ASSISTANT PATHOLOGIST SALISBURY HOSPITALS, WILTS.

THE only previous cases of fatal sodium nitrite poisoning that I have been able to trace are those of a family of two adults and a child (McQuiston 1936). Sodium nitrite was found in the salt-cellar and basin of cooking-salt, and was isolated from the stomach contents of the three patients and from remnants of the meal. It was not established how sodium nitrite came to be in the salt, but one of the victims had access to this substance at work.

Oppé (1951) describes a case in which a fatal outcome was prevented in a baby aged 2 months by giving intravenous methylene-blue. The baby had sodium nitrite gr. 2 added to its feed instead of sodium citrate.

In the following case death occurred about three hours after taking sodium nitrite.

A boy, aged 2 years, vomited while playing with his elder brother. After vomiting a second time he was given a glass of water and made to lie on the bed. The elder brother then produced an almost empty open bottle of sodium nitrite which the child had been licking. The child vomited once or twice more and was taken to hospital. On admission he was deeply cyanosed, collapsed, and crying with spasms of pain. His stomach was washed out, and oxygen administered, but his condition remained unchanged for three-quarters of an hour, after which he had a spasm and died.

Necropsy Findings.—The body was that of a well-developed cyanosed child. The mouth and œsophagus were normal, but the gastric mucosa was slightly inflamed. In spite of the vomiting and gastric lavage, the stomach contained a considerable amount of undigested food. The blood was darker than usual. The other organs were normal. 6·15 mg. of sodium nitrite was obtained from the stomach washings and 0·15 mg. from the stomach contents (Ilosvay's reaction) Vomited material was not available for analysis. Nitric oxide hæmoglobin was shown to be present in the blood by spectroscopy and by the colour reaction after boiling (Lucas 1935).

The sodium nitrite had been bought at a chemist's shop by the child's elder brother, aged 9, who wanted it for a chemical experiment about which he had

read in a book. There is no restriction on its sale. The capacity of the bottle was about 20 g., but it was thought to be almost empty when the child had access to it. The therapeutic adult dose of sodium nitrite is gr. $^1/_2$–2, but the drug is seldom prescribed. It relaxes smooth muscle but also acts as a reducing agent on the blood in the same manner as carbon monoxide. Being extremely soluble it was probably absorbed more quickly in this case because the child was given water to drink.

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Medical Societies

ROYAL SOCIETY OF MEDICINE

Psychopathy

ON Jan. 12 the psychiatric section, with Dr. E. B. STRAUSS, the president, in the chair, held a symposium on Psychopathy.

Prof. ALEXANDER KENNEDY spoke of psychopathy as essentially a social phenomenon. He regarded the psychopath as an individual who had failed to develop efficient mechanisms for social interaction and who had failed to take an accepted rôle in the society into which he was born. Between conception and full maturity there were innumerable points at which a defect of development might arise; often such a defect might be inapparent until it was demonstrated by the stress of social adaptation in adult life. Defects might occur in the fields of cognition, conation, or affect; certain factors might be lacking, or there might be a deficiency in control. The lack of efficient monitoring mechanisms, by virtue of which the normal individual laid down a pattern of inner consistency, was especially clear in the psychopath, who was deficient both in insight and foresight. Normally in planning a course of action, it was checked by monitoring devices both for its immediate expediency and for its future consistency with the principles of action laid down by the individual in the course of his development and maturation. In the psychopath measures of adaptation were crude and makeshift. The causes of psychopathy might lie in structural defects in the brain, developmental or due to minor birth injury, postnatal infections, kernicterus, or postconcussional syndromes. He thought that new drugs, in conditions such as tuberculous meningitis, might preserve life at the expense of future psychopathy; the same results might follow on new anæsthetic techniques in which prolonged hypotension was induced. Heredity was one of the factors in the causation, as shown by recent work on twins; and he would agree that there were purely mental causes in the physically normal individual—for example, when a child was reared in a negative affective environment.

Professor Kennedy felt that the modern Welfare State, which often put too much temptation in the way of the psychopath, should be able to devise some method for ensuring these incomplete human beings a satisfactory life and yet safeguard the community.

Dr. MAXWELL JONES described methods of re-educating the psychopath in a therapeutic community. The object in his unit at Belmont Hospital, where some hundred or so patients of both sexes were treated, was to subject the individual to a socialising experience which would lessen his social tensions and enable him to obtain more enjoyment from community life. Most psychopaths had a history of a disturbed home where the child felt unwanted; at school, whether he did well or badly scholastically, the child showed inability to mix or was antisocial; at work there was a record of restlessness, frequent changes of job, or unemployment, or of drifting into criminal activities; an unsatisfactory marriage and the production of unloved children often completed the self-perpetuating cycle. At Belmont Hospital treatment was essentially in groups or communities, the latter term being applied to any group numbering more than 12. Most of the patients' and therapists' time was spent in these therapeutic community meetings, at which all problems affecting staff or patients were freely discussed. Antisocial or aggressive behaviour on the part of the psychopath raised problems and often produced anger in the rest of the community; the individual was usually skilful in exploiting any "unfairness" or unjust treatment provoked by his antisocial conduct, using this to rationalise his further misbehaviour. With continued discussion in the community, the patient usually came to identify himself with the staff and the more normal members of the community, in which he gradually grew to accept a constructive rôle. Then, instead of finding pleasure in rebellious and destructive behaviour, he experienced feelings of guilt and remorse. Permanent improvement, as revealed by follow-up, was obtained in about 80% of patients. Some aggressive psychopaths were unsuitable for treatment by these methods; and such patients, after a time in the therapeutic community, often asked to be transferred to a mental hospital.

Dr. EDWARD GLOVER spoke of the need for accurate diagnostic criteria of psychopathy if misunderstandings and contradictions were to be avoided. The unconscious factors that contributed to both normal and abnormal development should not be overlooked. The social aspects of psychopathy should also be borne in mind; there were norms set by the community and even by the family, and conduct psychopathic in one environment might not be so in another. In military life, for instance, conduct equivalent to that of a homicidal psychopath was enjoined upon normal individuals. In these ways, the psychopath retained many affinities with the normal person, in contrast to the neurotic or the psychotic. Like the neurotic, he might be subject to acute states of confusion, or show compulsive behaviour, and might make use of projective mechanisms akin to those of paranoia or show a diminished range of reality-sense. The range of conditions labelled psychopathic should not be too much broadened lest it became meaningless; if the patient had a relatively intact ego and a normal conscience he should not be termed psychopathic. Thus, not all alcoholics, suicides, or people with inferiority states were psychopathic. The so-called schizoid character was the only type causing much diagnostic difficulty. In psychosexual disorders, similar criteria applied. Not all sexual perversions were incompatible with normal ego development; Freud had pointed out that the perversion was the obverse of the neurosis. Diagnosis might also be considered from the standpoint of structure of the pathological formation, under the headings of constitutional, developmental, and precipitating. The main constitutional factor seemed to be incapacity to stand mental stress. In this regard, episodic delinquent psychopathy should be regarded as a behaviouristic variety of psychosomatic abnormality; such psychopaths might recover spontaneously after the age of about 40. As to developmental factors, the first five years of life were as important for psychopathy as for other mental abnormalities. There was need for much more research to correlate the effects of different modes of upbringing with the endopsychic factors, and to study the way in which these latter dovetailed with the environment, in early life, to produce predisposition. The precipitating factor was often very slight; in some of these patients there seemed to be a

reserve of frustration and aggression ready to be activated by some minor stimulus, almost as in an allergic reaction. As regards prevention, more knowledge of the causes was necessary. Treatment should be aimed at reducing the tensions which these patients found unbearable. The therapist needed to have almost saint-like tolerance and patience, for the psychopath was a genius at testing the weaknesses in the therapist's own personality.

Reviews of Books

Ulcerative Colitis and its Surgical Treatment

BRYAN N. BROOKE, M.CHIR., F.R.C.S., assistant surgeon, United Birmingham Hospitals. Edinburgh: E. & S. Livingstone. 1954. Pp. 146. 37*s*. 6*d*.

ULCERATIVE colitis is a distressing complaint which imposes great handicaps upon the patient. As Mr. Brooke says, "life itself is clouded by denial of social activity, impoverishment from loss of earnings and mental depression." Until lately surgery had little to offer when the disease resisted medical treatment. Appendicostomy and cæcostomy were in favour at the beginning of the century, but they did not cure severe cases. In 1912 J. Y. Brown advocated ileostomy, but even that did not get rid of the diseased colon which might persist in causing unpleasant symptoms. During the last few years ileostomy combined with colectomy in one or more stages has been recommended, and Mr. Brooke here describes his considerable experience of this radical method of treatment.

The early part of the book gives a clear account of the pathology (so far as it is known), the X-ray appearances, and the complications of the disease. In the later part Mr. Brooke outlines the surgical methods of treatment and gives the full results of his own cases. He makes it clear that the mortality of radical operation is less than that of conservative treatment. After a colectomy, he says, patients are usually able to go back to their former occupation and live a moderately normal life.

Mr. Brooke states his case clearly and fairly. The beautiful illustrations, many of which are coloured, are excellently produced. Every surgeon should certainly read this book, and the wise surgeon will buy a copy.

An Introduction to General Practice

D. CRADDOCK, M.B., D.OBST. London: H. K. Lewis. 1953. Pp. 553. 42*s*.

THIS book is a remarkable achievement, for Dr. Craddock covers the whole field of general practice, gives good and practical advice on every subject he touches, yet avoids vagueness and excessive detail alike. Sir Heneage Ogilvie contributes a characteristically vigorous preface.

The practice implied is essentially a family one, inside the National Health Service, with a list of perhaps 2500 in town or 2000 in the country. Of 540 pages of text Dr. Craddock gives 220 to Mother and Child and Family Planning, and he includes an admirable account of domiciliary midwifery with its antenatal and postnatal appendices. The acute, chronic, trivial, and especially the functional complaint (though this word is wisely avoided), and the patient who typically brings each of these to the doctor, are considered separately, as are "old people" in their houses. There are noteworthy chapters on Drugs and Potions, Pain and its Relief, and Problems of Life and Death. The author quotes illuminatingly from many sources, adding a bibliography to each chapter, and an appendix of suggested reading to the book.

In not-yet-diagnosed illness of little import, Dr. Craddock advocates, for most patients, diagnosis in general terms—neuritis, fibrositis, flu, or merely a chill. For the cancer patient he upholds the deliberate, sustained, and organised lie—frankly described as such. All this is, of course, widely accepted practice, but its evil consequences are many and widespread. Should we not at least *try* to cast off the ill-fitting and embarrassing mantle of omniscience, to build up a body of patients we can take freely into our confidence, and to increase the number of those who can face death with clear eyes, knowing that, among others, their doctor will help them through "the bitter wave"?

Atlas of Regional Dermatology

ERNEST K. STRATTON, P.D., M.D., research associate, George Williams Hooper Foundation for Medical Research, University of California Medical Centre; and others. Springfield, Ill.: Charles C. Thomas. Oxford: Blackwell Scientific Publications. 1953. Pp. 274. £5 7*s*. 6*d*.

THIS American atlas compiled by a team of five authors led by Dr. Stratton contains nearly 600 pictures, mostly in black and white, grouped according to anatomical region. These groups are preceded by alphabetical lists of the diagnostic possibilities. There are also a number of descriptions of many of the diseases shown. Many of the pictures themselves are excellent, particularly those from the Hôpital Saint-Louis. Others are poor or even misleading. Little indication is offered of the relative incidence or importance of the diseases illustrated, and some having unusual distributions (e.g., chronic discoid lupus erythematosus on the trunk) are shown without comment. Many common dermatoses are poorly represented, but space is given to rarities—some of them very rare indeed.

Man in Space

HEINZ HABER. London: Sidgwick & Jackson. 1953. Pp. 296. 30*s*.

"In most discussions of space travel, man's ability to survive in space is taken for granted. Actually this question is still open. As yet we have no way of knowing; we can only conjecture and make some honest attempts at guessing. In addition to a few facts, this book contains many hypotheses. They could be wrong."

THUS Dr. Haber introduces his popular account of the light that aviation medicine and astronomy can throw on the possibilities of human existence on an artificial satellite circling the Earth at a height of 300 miles, or in a space-ship visiting the moon or Mars.

The satellite might be reached in a three-stage rocket, but the crew would have to withstand two periods of rapid acceleration with forces of about eight times gravity lasting for half to three-quarters of a minute, when they could neither move nor breathe, and might lose consciousness. This is at the limits of human tolerance, but selected, very fit, men might be trained to bear it. On the satellite or space-station Dr. Haber believes a self-contained biological cycle could be set up with the green alga Chlorella, which in sunlight would absorb carbon dioxide and sewage, and give off oxygen: a layer of alga 1 in. deep and 125 sq. ft. in area should yield enough oxygen for 50 men. But it would be difficult to rid this self-contained atmosphere of the many volatile toxins produced by men and machines at work.

Overheating, irradiation by ultraviolet light and by X rays emitted from the sun, incessant bombardment by cosmic rays and by meteoric dust, are other dangers which may prove an insuperable barrier to interplanetary flight, and Dr. Haber wonders whether a round trip to Mars lasting two and a half years would be really worth the cost. But the satellite at 300 miles is more practicable and has military potentialities.

Copying and Duplicating Medical Subjects and Radiographs (Springfield, Ill.: Charles C. Thomas. Oxford: Blackwell Scientific Publications. 1953. Pp. 80. 36*s*.).—This monograph, edited by H. Lou Gibson, is the fourth in the series "American Lectures in Medical Photography." Unfortunately the larger part is concerned with copying techniques which, though they may be called "medical," differ in no way from standard photographic practice. The last section deals with the difficult subject of copying radiographs and could well have been expanded to include far greater detail. Both these subjects, however, are treated from the point of view of the amateur and describe methods and apparatus which are likely to be available to him. Thus, in laboratories where such work is carried out on a makeshift basis, the information will be of practical value. As in the other books in this series, the text and illustrations are of high quality.

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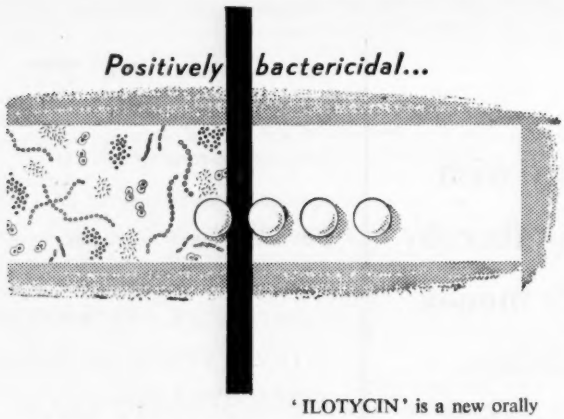

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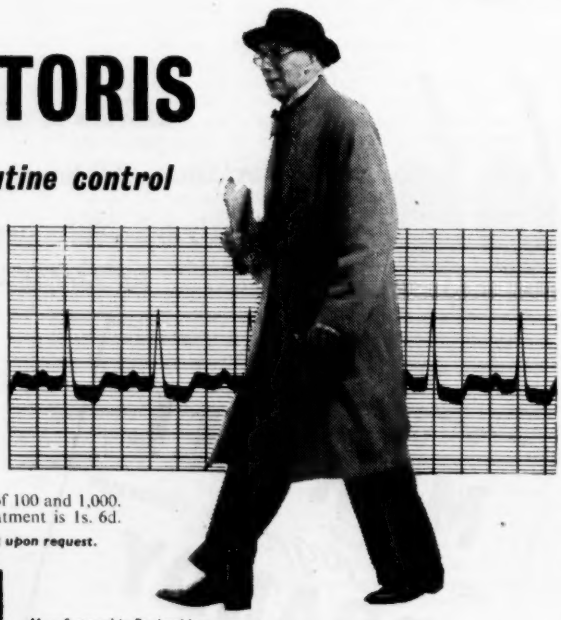

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THE LANCET

LONDON: SATURDAY, JAN. 23, 1954

Treatment of Breast Cancer

OF late years there has been growing dissatisfaction with the results of treatment in breast cancer. For a carcinoma which lies close to the surface of the body and is much easier to palpate than tumours in most other parts, these results are very poor. Pathologically, however, breast carcinoma is a complex disorder, with infinite differences in malignancy and tortuous paths of dissemination; and resistance to its spread varies widely.

It has only lately become possible even to influence tumour malignancy or host resistance by hormones; and all the efforts of curative therapy have been concentrated (and must at present continue to be concentrated) on breast cancer as a local disease. Its immediate paths of exit from its site of origin are therefore of paramount importance, and these are apparently much less simple than has been supposed. It is generally agreed that breast carcinoma spreads in its early stages by the lymphatics: occasionally blood-stream dissemination may seem the only explanation of early metastases, but if this were the usual early route the rationale of treatment would be invalid instead of merely resting on rather insecure foundations. The classical, and still the standard, surgical treatment for breast cancer is radical mastectomy—an operation which presupposes that carcinoma cells spread only by the axillary lymphatics. Ever since HALSTED's day (and indeed before it) some have declared that the axillary lymphatics share this sinister task of transportation with the internal mammary (or parasternal) lymphatics. This was not proved, and was therefore not generally believed, until HANDLEY and THACKRAY [1] showed by histological studies of biopsy material that about a third of patients who underwent radical mastectomy already had deposits of carcinoma cells in their parasternal nodes at the time of operation—a finding which has since been confirmed in a larger number of patients.[2] In our present issue Dr. ANDREASSEN, Professor DAHL-IVERSEN, and Dr. SØRENSEN describe histological studies of the supraclavicular and internal mammary lymph-nodes. At first only the supraclavicular nodes were studied; and it was found that a sixth of the patients had deposits above the clavicle, though only when the axillary nodes were also invaded. Latterly the parasternal and the supraclavicular nodes were removed during radical mastectomy: when the axilla was invaded, 9% of the supraclavicular nodes and 52% of the parasternal nodes were also the seat of metastases. These pioneer studies of the three groups of lymph-nodes, together with the parallel work of MACDONALD et al.[3] published a few weeks ago, confirm that invasion of the supraclavicular nodes is almost invariably secondary to invasion of the axillary nodes (though usually this is not clinically apparent), whereas parasternal invasion is a primary spread which sometimes precedes axillary invasion.

Pathological findings have thus shown one reason for the poor results of radical mastectomy—parasternal or supraclavicular metastases often precede the operation. The reaction to this and other demonstrations of therapeutic inadequacy has been twofold. One school, which includes ANDREASSEN and his colleagues, urges an increase in the size and scope of radical mastectomy, whereas a second maintains that the obvious course is to curtail the surgery and lean more heavily on radiotherapy. MCWHIRTER,[4] the leading exponent of the latter school, has obtained very good results, though exact comparison with surgically treated series is difficult because with his procedure insufficient tissue is removed for histological staging. Even those who do not follow MCWHIRTER acknowledge his great service in stopping operations on the inoperable; but they have contended that this very effect accounts for the excellence of his results—the incurable die less rapidly than they would under a surgical regimen. Such a criticism is unfair, because MCWHIRTER has shown a 62% survival for five years in his "operable" group, which would correspond roughly with stages I and II together. This would be outstandingly good if his clinically judged "operable" group could be proved to correspond to histologically staged groups I and II treated by radical mastectomy. Surgeons have hesitated to acknowledge the claims of radiotherapy, because of the well-known fact that invaded lymph-nodes very often contain normal-looking carcinoma cells after the completion of the radiotherapy. Are these cells in fact locked up in fibrous tissue, or do they continue to multiply? Does radiotherapy forfeit permanent cure in patients with early invasion of lymph-nodes, by not removing those nodes? Does it prolong life in those who because of extensive spread cannot be permanently cured, at the risk of forfeiting cure in the early case? Is its superiority over surgery in the late case due to its damaging, instead of stirring into increased activity, cancer cells which are beyond its lethal range?

Support for the "radiotherapy plus conservative surgery" school has, however, come from surgeons as well as from radiotherapists. From his wide clinical experience Mr. HOLMAN advocates (on p. 174 of this issue) reconsideration of radical mastectomy with the emphasis on conservation; and he asks questions which will evoke a sympathetic echo from many thoughtful surgeons. Nevertheless yet more radical surgery may show an improvement on the results of radical mastectomy. The conservative school has the advantage that it can already produce results of five-year, and even ten-year, survival studies, whereas the ultraradical school of surgery cannot. The extended operations devised by MARGOTTINI and BUCALOSSI,[5] by WANGENSTEEN,[6] and by URBAN [7] have been briefly summarised by HANDLEY and THACKRAY [2] who conclude that URBAN's operation seems to offer the greatest likelihood of success. To these operations must be added that of ANDREASSEN and his colleagues which they mention, without much detail, in their article this week. But before these operations, which

1. Handley, R. S., Thackray, A. C. *Lancet*, 1949, ii, 276.
2. Handley, R. S., Thackray, A. C. *Brit. med. J.* Jan. 9, 1954, p. 61.
3. MacDonald, J. J., Haagensen, C. D., Stout, A. P. *Surgery*, 1953, **34**, 521.
4. McWhirter, R. *Brit. J. Cancer*, 1950, **4**, 368.
5. Margottini, M., Bucalossi, P. *Oncologia, Roma*, 1948, **22**, 70.
6. Wangensteen, O. H. *Ann. Surg.* 1950, **132**, 839.
7. Urban, J. A., Baker, A. W. *Cancer*, 1952, **5**, 992.

are still in the experimental stage, are widely adopted, it is essential to make sure that they are safe and really offer better prospects; meanwhile they should be left for trial in a few hands.

Why do views on the efficacy of various treatments differ so greatly among honest and scientifically minded men? WILLIAMS et al.,[8] in a survey of 1044 cases of breast cancer, have shown that there was very little difference in the end-results between radical and local treatment: it did not seem to matter much what was done. The reason for this may perhaps be found in the view that the great majority of carcinomata are either curable or incurable by present-day methods when they are first found. The curable carcinomata have not spread beyond their site of origin and are cured by almost any form of treatment. The incurable growths have already escaped beyond the limits of all the tested forms of treatment. Surgery, so far from prolonging life, may actually shorten it, though it may reduce discomfort. The method of treatment may thus matter only in a fairly small proportion of patients—perhaps some 10%—in whom a carcinoma has spread only a short distance outside the breast. If this is so, superior results from a particular treatment in 10% of a series may be lost in a mass of variables unless enormous numbers are considered. Even then the difference, expressed as a percentage, would be small, though statistically significant.

It is hardly fair, but none the less necessary, to add philosophic to technical difficulties. It is easy to measure the quantity of life but impossible to measure its quality. In theory at least, most of us would prefer not "to live a life half dead, a living death." Certainly, length of survival is not the sole yardstick for measuring success in the treatment of breast cancer.

Paroxysmal Nocturnal Hæmoglobinuria

THIS odd condition was first described as long ago as 1911 by MARCHIAFAVA and NAZARI, though a really complete description was not given until twenty years later by MICHELI. The affected patient notices that the urine he passes when he first gets up in the morning is a dark port-wine shade, and usually he puts this down to "blood in the water." If he delays visiting his doctor until the evening and passes a specimen of urine for the doctor to examine, he is astonished and disconcerted to find that this appears quite normal. The matter is settled when the patient brings one of the first morning specimens for examination and it is found to contain hæmoglobin but not red cells. The patient usually looks anæmic, and it is now known that nocturnal hæmoglobinuria is always accompanied by a hæmolytic type of anæmia.

J. V. DACIE and his co-workers in this country, and T. H. HAM and, more recently, W. H. CROSBY in the U.S.A., have contributed much valuable information. Hæmoglobinuria occurs whenever the concentration of free hæmoglobin in the plasma rises above the threshold for renal excretion; in normal persons this is about 130 mg. per 100 ml., but in chronic hæmoglobinuria the threshold may be lower—about 50–100 mg. per 100 ml. Consequently hæmoglobinuria may occur in any hæmolytic anæmia when enough free hæmoglobin is circulating, and the commonest cause of hæmolytic anæmia is some circulating agent which destroys red cells. In acquired hæmolytic anæmia a circulating antibody is responsible; but in paroxysmal nocturnal hæmoglobinuria (P.N.H.) the red cell is at fault and there are no abnormal circulating hæmolysins. DACIE and FIRTH [1] showed that normal red cells transfused into a patient with P.N.H. survive for a normal time, and DACIE and MOLLISON [2] showed that when red cells from a patient with P.N.H. are transfused into a normal person they are rapidly destroyed. HAM [3] found that the red cells in P.N.H. are rapidly hæmolysed in vitro in their own plasma or in normal plasma, whereas normal control cells are unaffected by either. CLAPP et al.[4] and CROSBY [5] have studied the plasma hæmolytic system that is responsible for the excessive destruction of red blood-cells in P.N.H., and have shown that the activity of this system depends on a balance between two hæmolytic factors, stable and labile, and two inhibitory factors, also stable and labile; calcium and magnesium ions are also essential factors. CROSBY and DAMESHEK [6] observed that the stable inhibitory factor is easily destroyed by thrombin. In-vitro tests showed that small amounts of thrombin greatly increased the hæmolysis when P.N.H. cells were suspended in their own plasma; and this observation has been utilised in treating the hæmolytic crises of the disease. The hæmolytic reaction is thought to be enzymatic; and HARRIS and his co-workers [7] consider that it is a proteolytic reaction. If so, the abnormality is probably in the stromal proteins of the cells, and this is supported by the observation that other blood elements—leucocytes and platelets—are also abnormal.[8] In P.N.H. abnormal hæmoglobins are not present in the red cells; and there are none of the odd shapes and fragmented cells such as are seen in Mediterranean anæmia. Splenectomy used to be recommended in P.N.H., but the results were disappointing and the present view is that the spleen plays little part in the hæmolytic system and that splenectomy does not mitigate the hæmolysis at all. Splenomegaly is uncommon, until blood-transfusions are given. The hæmoglobinuria that is a prominent feature of the disease is much commoner than in other hæmolytic diseases and shows odd variations in intensity. CROSBY [8] points out that in most hæmolytic diseases the red cells are destroyed mainly in the reticulo-endothelial system (in the spleen, for instance) and much of the released hæmoglobin never gets into the circulating blood; but in P.N.H. most, if not all, of the red cells are destroyed in the blood-stream and the hæmoglobin therefore goes directly into the plasma. The "nocturnal" part of the syndrome is related to sleep and not to the clock; if the patient sleeps during the day, the rhythm is reversed. HAM [9] and DACIE et al.[10] have shown that increased acidity

8. Williams, I. G., Murley, R. S., Curwen, M. P. *Brit. med. J.* 1953, ii, 787.

1. Dacie, J. V., Firth, D. *Brit. med. J.* 1943, i, 626.
2. Dacie, J. V., Mollison, P. L. *Lancet*, 1949, i, 390.
3. Ham, T. H. *Arch. intern. Med.* 1939, **64**, 1271.
4. Clapp, M. P., Williams, M. J., Mende, J. L. *Blood*, 1952, **7**, 1117.
5. Crosby, W. H *Ibid*, 1953, **8**, 444.
6. Crosby, W. H., Dameshek, W. *Ibid*, 1950, **5**, 822.
7. Harris, J. W., Jordan, W. S., Pillemer, L., Desforges, J. F. *J. clin. Invest.* 1951, **30**, 646.
8. Crosby, W. H. *Blood*, 1953, **8**, 769.
9. Ham, T. H. *New Engl. J. Med.* 1937, **217**, 915.
10. Dacie, J. V., Israëls, M. C. G., Wilkinson, J. F. *Lancet*, 1938, i, 479.

of the blood, which develops during sleep, increases hæmolysis in P.N.H., but probably other factors are responsible as well. The hæmoglobinuria varies also with the intensity of the hæmolytic activity in the plasma. The disease is subject to spontaneous remissions lasting several weeks; but there are also long-term improvements when the whole syndrome seems to die down, and this sort of change is probably related to increased resistance of the patient's red cells. Excretion of hæmosiderin in the urine has been regarded as diagnostic of P.N.H. in periods free from hæmoglobinuria; CROSBY and DAMESHEK,[11] however, point out that hæmosiderinuria can be found also in other diseases associated with persistent and pronounced hæmoglobinæmia.

One of the difficulties in the management of P.N.H. is that the patients are unusually liable to transfusion reactions and to a hæmolytic crisis after administration of drugs and in other circumstances. The reaction after transfusion is not due to the usual sort of incompatibility, because it is the patient's own red cells and not the donor cells that are destroyed; DAMESHEK and NEBER[12] found that the agent responsible is in the donor's plasma, and these post-transfusion hæmolytic reactions can be avoided by washing the donor cells. Among drugs that have caused, or been followed by, hæmolytic reactions are the arsenicals and substances of the nitrogen-mustard group. Various foods, including fish and meat,[8] are reported to have provoked crises. Anxiety seems to be responsible in other cases. The treatment of P.N.H. is not easy. Splenectomy has been tried and abandoned. Blood-transfusion does no more than tide the patient over the immediate hæmolytic crisis, and sometimes may actually make things worse; then transfusion of washed red cells, with all its attendant technical difficulties, has to be used. Many drugs have been tried without success. Since P.N.H. is not due to excessive antibody activity, it is not surprising that corticotrophin and cortisone have failed to influence the anæmia. Adrenaline, however, can inhibit a crisis temporarily. A different line of treatment is based on the observation that thrombin formation causes destruction of the heat-stable P.N.H. inhibitory factor. CROSBY[8] points out that this leads to increased P.N.H. hæmolytic activity with destruction of P.N.H. red cells and also of P.N.H. platelets. The destruction of platelets releases thromboplastin; this will be followed by the conversion of some prothrombin to thrombin, and the thrombin will then destroy more P.N.H. inhibitor; so a cycle is set up. Anticoagulants of the dicoumarol type break this cycle at the stage of prothrombin-thrombin conversion, and dicoumarol has been given to patients with P.N.H. in an attempt to slow the hæmolysis. Sometimes this treatment is successful; and dicoumarol, or the related drugs ethyl biscoumacetate ('Tromexan') and phenylindanedione are worth trying. Heparin must not be used, because in the plasma concentrations obtained clinically it actually increases hæmolysis.

All these points are discussed in detail by CROSBY,[8] who points out that we still have no clue to the ætiology of the disease. The present hypothesis is that it is caused by a more or less permanent alteration of that part of the reticulo-endothelial system which produces the proteins of the stroma of red blood-cells and of other blood elements.

11. Crosby, W. H., Dameshek, W. *J. Lab. clin. Med.* 1951, **38**, 829.
12. Dameshek, W., Neber, J. *Blood*, 1950, **5**, 129.

Infantile Gastro-enteritis

THE death-rate from enteritis in children under two years of age has fallen remarkably since 1945. Dr. IAN TAYLOR, in an article on p. 202, suggests that this is largely due to improved treatment, and notably more general use of intravenous saline infusions; but he points out that the reduction may also be related to the increased use of dried milk. He remarks on the difficulty of assessing individual factors, one of which, he says, is a reduced incidence of the severe epidemic form of this disorder.[1 2] In a complementary article, the L.C.C. public-health department[3] review a group of cases in infants admitted in 1949–50 to hospitals in two London areas. They find that the incidence was higher in the larger families and in those with subaverage social conditions. Many such families utilised residential nurseries, where the risk of gastro-enteritis was relatively great; and they were unusually liable to domestic upsets as a result of which infants had to be looked after by someone other than their mother and were therefore particularly exposed to infection. (In Canada, by contrast, socio-economic factors do not seem to bear on the incidence of the disease.[2]) The L.C.C. workers report that, in the case of illegitimate children, financial need may result in the early abandonment of breast-feeding—which, as they rightly emphasise, is an important preventive factor. WOLFISH[2] found that in less than 1% of the cases of gastro-enteritis admitted to the Hospital for Sick Children in Toronto was the infant entirely breast-fed when the symptoms first developed; and the Oxford survey[4] also showed that full breast-feeding was necessary for protection. Ross and her colleagues[5 6] in Glasgow have noted this, and have found that fæces from fully breast-fed infants have a predominating lactobacillary flora and a pH of 5·5 to 5·0, whereas the fæces from artificially fed infants have a pH of 7·0 to 9·0. Ross has also established that a single supplementary feed leads to loss of the lacto-bacillary element and a rise in the pH of the fæces which no further dietary change will reverse, and that hexosamine is present in human milk but absent from cow's milk. This is supported by the work of GYÖRGY,[7] who isolated from human milk *N*-acetyl glucosamine, which is a specific growth factor for *Lactobacillus bifidus*.

CRUICKSHANK[8] has observed that a third of the patients admitted to hospital with enteritis come from institutions. In 68% of the cases reviewed in the L.C.C. report the patient had been in communal accommodation, a hospital outpatient department, or a welfare centre; and almost half of the patients had been in contact with other children with diarrhœa. The report says that half the infants sent to hospital with a diagnosis of gastro-enteritis were found on admission to have the disease very mildly or not at all. The practitioner who is handicapped in his treatment

1. Smith, J. *J. Path. Bact.* 1953, **66**, 503.
2. Wolfish, M. G. *J. Pediat.* 1953, **43**, 675.
3. Scott, J. A. *Brit. J. prev. soc. Med.* 1953, **7**, 194.
4. Stewart, A., Westropp, C. *Brit. med. J.* 1953, ii, 305.
5. Ross, C. A. C. *Brit. J. Nutr.* 1953, **7**, 259.
6. Ross, C. A. C., Dawes, E. *Lancet* (in the press).
7. György, P. *Pediatrics*, 1953, **11**, 98.
8. Cruickshank, R. S. *Lancet*, 1953, ii, 185.

of an infant by poor home conditions may understandably be tempted to attach the label "gastro-enteritis," to ensure admission to hospital; but those infants who are free from this disorder should not be admitted to the gastro-enteritis wards.

As regards the causal organisms,[9] it is now recognised that many serological types of *Escherichia coli* may cause epidemics.[1 10] K. B. ROGERS,[10] in a preliminary account of a trial at the Birmingham Children's Hospital, reported that hospital enteritis was reduced by eliminating from "clean" wards infants from whose fæces these types were isolated. Two useful refinements in the identification of these *E. coli* have been introduced. WRIGHT and her co-workers[11 12] have used H antisera to subdivide strains of *E. coli* 0·55 (B5); and SMITH[1] has subdivided strains of *E. coli* 0·111 (B4) and 0·55 (B5) by the same technique. In France NICOLLE and his associates[13 14] have used phages to subdivide types 0·111, 0·55, and 0·26. Attempts to confirm the suggestion that institutional epidemics were caused by a virus have proved unsuccessful.[15]

In the carefully controlled Medical Research Council trial[16] patients treated with sulphadiazine fared much better than others who received aureomycin, and perhaps better than those who received chloramphenicol. But here generalisation is dangerous: in some epidemics administration of sulphadiazine has not benefited infants, who improved, however, on chloramphenicol.[17] Accordingly sensitivity tests should be made, so that a proper alternative may be chosen if the routine treatment fails. Prophylaxis with chloramphenicol or sulphadiazine controls gastro-enteritis due to cross-infection.[18] The need for such prevention in a well-run hospital reflects sadly on our inability to halt the spread of this form of infection, which is not stopped by the good barrier nursing that prevents all other cross-infections.[1 3 12 19]

The various types of *E. coli* giving rise to gastro-enteritis can be identified fairly easily. The challenge before us is to find out how the infection is transferred and then to prevent transfer. The investigation organised by the Medical Research Council has confirmed the value of big controlled trials; but it has also underlined the difficulties that arise when many centres and many different workers have to conform to the rules necessary in such a combined study. Perhaps a single unit should be asked to tackle the next stage.

Ordinary Youths

Miss PEARL JEPHCOTT's study[20] of working girls between the ages of 17 and 20, made over more than five years ago, showed them to be lacking in general interests and unmoved by prospects of a career; but nevertheless fully oriented to the idea of marrying and raising a family—to a mature and normal biological programme, in fact. A study made by Dr. R. F. L. LOGAN and Miss E. M. GOLDBERG,[21] for the Medical Research Council's Social Medicine Research Unit, on a group of young men of 18 living in an outer London borough, is in some ways a companion-piece to hers. The 85 youths invited to take part were all born between April 1 and June 1, 1931, and had to register for National Service on May 21, 1949. Of these, 74 coöperated fully (completing a questionary, and attending the unit for an interview and clinical examination) and the remaining 11 gave some information. Most of them had been at work for four years, and "the outlines of an adult pattern" were beginning to emerge.

LOGAN and GOLDBERG classify them into five occupational levels: level 1 (which corresponds broadly to the Registrar-General's social classes I and II) covers the 9 who were undergoing full-time education in preparation for the professions; level 2 (which does not correspond directly to any class in the Registrar-General's scheme) covers those in training for executive and managerial posts, of whom there were 20; level 3 covers learners for trades (numbering 33), with some prospects of promotion; level 4, semi-skilled workers without prospects of promotion (numbering 12); and level 5 unskilled workers (numbering 11). Levels 3, 4, and 5 correspond broadly with social classes III, IV and V.

The choice of job depended partly on family influences, which could sometimes be detected; but it was possible to catch "only occasional glimpses of the internal and often unconscious motives of the young man himself." The social class of the father naturally had an effect, and in fact there was only a limited range of movement by the sons away from the fathers' classes. The scatter up and down the scale was greatest, as might be expected, in 53 families of social class III; but even here, if apprentices of level 2 as well as level 3 are included, more than half the sons remain in the same class as their fathers. The Youth Employment Service appears to have had very little influence on anybody, and was mainly used as a convenient agency for the notification of vacancies in semi-skilled and unskilled work. The fathers seem seldom to have pressed their sons unduly, though it is disillusioning to learn that the 6 engine-drivers in the group had urged their sons not to join the railway. The "drifters" among the boys usually came from homes where the family situation was disturbed, and most of them gravitated from one unskilled or semi-skilled job to another. An outstanding interest or aptitude had decided the choice of work for 8 boys; in 7 others mental dullness had limited it. Sometimes unconscious needs influenced the choice of work: a homosexual was seeking to express himself in the dramatic arts, and a stiff reserved, solitary young man was leaving the G.P.O. to join the police force, because, he said, "youth today needs some discipline." No less than 10, desiring change, wanted to be lorry-drivers; and 7 of these came from broken homes. Labourers and machine-minders did not expect much from their jobs beyond a pay packet; they centred their future hopes in day-dreams about free-time activities—dreams of becoming football stars or band-leaders. Youths learning skilled trades identified themselves more closely with their work, and it was rare for an apprenticeship to be abandoned. Moreover, they were more interested in the work and its prospects than in their present pay. Work spread into the

9. See *Lancet*, 1952, ii, 323.
10. See *Brit. med. J.* 1953, ii, 219.
11. Wright, J., Villaneuva, R. *J. Hyg., Camb.* 1953, **51**, 39.
12. Wright, J., Roden, A. T. *Amer. J. Hyg.* 1953, **58**, 133.
13. Nicolle, P., Jude, A., Diverneau, G. *Ann Insl. Pasteur*, 1953, **84**, 27.
14. Nicolle, P., Le Minor, L., Buttiaux, R., Ducrest, P. *Bull. Acad. nat. Méd.* 1952, **136**, 483.
15. Ronan-Fanning, R., Harnett, T. Report of the Medical Research Council of Ireland, 1945, p. 16.
16. *Lancet*, 1953, ii, 1163.
17. Piette, J., Vézina, N. *Un. méd. Can.* 1951, **80**, 26.
18. Todd, R. M., Hall, E. G. *Brit. med. J.* 1953, i, 1359.
19. Rogers, K. B. *J. Hyg., Camb.* 1951, **49**, 140.
20. Rising Twenty. London, 1948; and see *Lancet*, 1948, ii, 698.
21. *Brit. J. Sociol.* Dec. 31, 1953, p. 323.

leisure time of the more ambitious, and they attended evening classes as a matter of course. The families of these young men saw the path to higher social status through the skills of engineering, rather than through "white collar" jobs.

The physical health of the 74 was on the whole remarkably good, though there were many minor disorders such as acne, dental caries, catarrh and sinusitis, boils, deafness, and chronic otitis media. Of the 4 cases of major disease, 3 were respiratory, the other being a case of thyrotoxicosis. Creative or constructive leisure pursuits were rare: these youths were interested mainly in pastimes, and had little enthusiasm for civic or community activities, and those who belonged to clubs took little responsibility for running them. There was among them, however, a growing appreciation of music of all kinds; probably the B.B.C. deserve the credit, for their persistent reminders to a dormant gene that before CROMWELL we were a musical nation. The sex behaviour of the group, though penny-plain beside that reported to KINSEY, showed evidences, the observers thought, of a changing pattern. They found these youths "remarkably free from guilt" about premarital relationships. The fact that they still expected wives and sisters to be chaste, however, argues some unresolved conflict, if only at an intellectual level. Most of them claimed to regard the rôle of women as that of full partners in both premarital and marital relationships. Yet the mental health of the group was not particularly satisfactory: which may or may not have been related, in some, to unvoiced or unconscious guilt about sex. Of the 74, 31 showed emotional disturbances, and 12 of these needed psychiatric help. In most of these cases there were disturbed family relationships, and more than half of them came from the lowest job levels. The remaining 19 had mild symptoms regarded as emotional, such as headache, dyspepsia, fatigue, sweating, and an unsettled outlook. In 7 of these cases the father had died or left the family, and in some others the fathers were unstable or socially ineffective. This group as a whole seemed to be shy with girls; and they were vague and evasive about their sex knowledge and behaviour. Only 4 youths out of the 74 could be classed as fully mature for their age—physically, intellectually, emotionally, and socially. There were 4 at the other end of the scale who were inadequate in all these ways; and there were 11 showing disharmony of growth—being, perhaps, mature physically but inadequate socially, or intellectually advanced but childish in physique, or in some other way lopsided.

Surveys of youths made before the late war were largely concerned with the effect on them of widespread unemployment: boys at that time might go on the dole straight from school. That problem has dissolved, to confront us with others created by the existence of ten vacancies for every youngster.[22] The low birth-rate of the '30s, and the raising of the school-leaving age had combined, by 1951, to reduce juvenile man-power by almost a third of the figure for 1935. Social measures largely designed to safeguard the adolescent in a time of unemployment have included the raising of the school-leaving age, further education at county colleges, annual medical examinations up to the age of 18 and additional examinations at each change of job, and the setting up of the Youth Employment Service to give vocational guidance. The National Youth Council, too, is given official support in providing many kinds of recreation. This survey suggests that while apprentices and others in the higher job levels are making good use of the educational opportunities offered, the Youth Employment Service is not being fully used; and that the value of regular physical examinations is very largely lost because they are not followed by appropriate treatment. It was uncommon for these boys to have had any medical treatment at all since childhood. None of the 4 with major disorders had been advised on a suitable job, and none of the 12 with severe emotional disturbances was under medical care. This suggests that we have unwittingly substituted the collection of figures for the care of people. But a still less agreeable picture is presented of the attitude of these young men to life. They are accepting the world passively: there is no suggestion of "restless youth, eager to explore and experiment." They have grown up in a world of war or threat of war, and they suffer great uncertainty about standards of behaviour, and about relationships in the home and at work. "An overall pressure towards 'security,'" LOGAN and GOLDBERG say, "is being exerted constantly." But "security" is one of those things that no-one bothers to think about unless he feels insecure. Moreover, like "happiness," it is less a state of affairs than a state of mind. These young men, as LOGAN and GOLDBERG point out, must be seen against a background of contradictions and uncertainties, a background which offers "little guidance and no goal"; and perhaps, considering everything, they show "more resilience and fewer problems than one might expect."

22. Lane, R. E., Logan, R. E. L. *Practitioner*, 1949, **162**, 287.

Annotations

EXPERIMENTAL SCURVY

IN the late war the scientific advisers to the Ministry of Food were handicapped by their lack of information on vitamin requirements. The Medical Research Council therefore enlisted the services of a group of conscientious objectors, housed at the Sorby Research Institute, Sheffield, for large-scale experiments on vitamin A, which presented the most urgent problem. Later another group of 20 volunteers, which included many of those who had served in the first investigation, took part in similar experiments on vitamin C. A team based on the council's Vitamin C Subcommittee was responsible for the scientific planning of the work; and Prof. H. A. Krebs, F.R.S., undertook its immediate supervision. A preliminary account of the experiment, and of the main conclusions, was published in 1948.[1] It was certainly a happy coincidence that the final report [2] appeared last year, which marked the bicentenary of the first experiments on scurvy by the British naval surgeon, James Lind.

The preliminary account showed that volunteers who were completely deprived of vitamin C developed hyperkeratosis of the hair follicles after 17–21 weeks. In its early stages the abnormality was indistinguishable from

1. Medical Research Council. *Lancet*, 1948, i, 853.
2. Vitamin C Requirements of Human Adults. Compiled by W. Bartley, H. A. Krebs, and J. R. P. O'Brien. *Spec. Rep. Ser. med. Res. Coun., Lond.* no. 280. H.M. Stationery Office. 1953. Pp. 179. 17*s*. 6*d*.

hyperkeratosis arising from other causes, but it was invariably present. After 26–34 weeks hæmorrhages developed round the hair follicles, with the appearance of typical red blotches. After 30–38 weeks frank scurvy appeared, with swelling and hæmorrhage of the gums. Ultimately 2 of the volunteers developed alarming cardiac disorders, and had to be retired from the trials and treated with ascorbic acid. Experimental wounds failed to heal properly.

All these scorbutic lesions were prevented by ascorbic acid in daily doses of 10 mg. This dosage also cured the skin manifestations of scurvy in 7–9 weeks, and the mouth lesions in 10–14 weeks. Quite understandably small doses were not tried in the treatment of the cardiac abnormalities. In contrast with their physiological action, the 10-mg. doses were insufficient to maintain the level of ascorbic acid in the blood at the level found before the trials were started. In both the undosed volunteers and those given 10-mg. doses, ascorbic acid virtually disappeared from the plasma. In the leucocytes, which are normally much richer in the vitamin than is the plasma, only about 6% of the original level was found in the scorbutic volunteers and 12% in those given the 10-mg. doses. In both the plasma and leucocytes, however, the vitamin could be maintained at the original levels by daily doses of 75 mg. Saturation tests, which measure the vitamin-C status by the number of days for which massive dosing must be continued before the overload is excreted into the urine, readily distinguished those volunteers who were given 75 mg. daily from those who were given lower doses. Levels of dosing of 20 mg. daily or less, however, could not be differentiated by saturation tests.

In compiling the final report W. Bartley, H. A. Krebs, and J. R. P. O'Brien have coördinated a large mass of pathological and biochemical evidence. Full reliance can therefore be placed on their reaffirmed conclusion that 10 mg. daily of ascorbic acid suffices to cure scurvy or to prevent it for an indefinite period. In their opinion, a daily allowance of 30 mg. seems to provide an adequate safety margin. This allowance was recommended in 1938 by a technical commission of the League of Nations, and more recently an allowance of 20–30 mg. was suggested by a committee of the British Medical Association. There is wide disparity between the vitamin-C requirement assessed by British workers and the much more liberal allowances of 75 mg. and upwards which are considered desirable by American workers. In favour of the American view it is often pointed out that animals which synthesise their own vitamin C always maintain their blood-plasma in a state of saturation. In man a dose in the region of 10 mg., which cannot prevent disappearance of the vitamin from the plasma, appears to sustain a much lower vitamin-C status than prevails in most animal species.

But can the level of ascorbic acid in the blood be accepted as an indication of the vitamin-C status? Comparison of the results of the experiments at Sheffield on vitamins A and C reveals at least one important difference in their metabolism. With vitamin A the level in the plasma fell slowly and gradually over a year or more; and symptoms of deficiency could be expected when values below a certain level were found. Vitamin C, on the other hand, disappeared from the plasma in the first 3 weeks of deprivation, and the clinical signs of scurvy appeared only some months later. Despite the work and thought which have been devoted to the problem, therefore, there still seems room for further investigation. Probably there are certain crises in metabolism, caused by injury, illness, or rapid growth, in which a lavish intake of vitamin, on a scale involving special medication, is beneficial. But the experiments at Sheffield lead inevitably to the conclusion that healthy adults can avoid all signs of vitamin-C deficiency by eating reasonably well-chosen and well-cooked food.

HYPNOSIS AS A DENTAL ANÆSTHETIC

THE Greeks, who knew and named so much, had a word for hypnosis long before Franz Anton Mesmer rediscovered and exploited mesmerism. This curious state has never achieved complete respectability since that dramatic revival; and is now possibly more suspect than ever, since—according to Mr. E. E. Wookey, opening a discussion at the annual meeting of the British Dental Association last July—it has been put to infamous use as a means of getting witnesses to say the desired things in political trials. But there was a time—just before the discovery of chloroform—when hypnosis was almost established as a regular medical procedure in the field of anæsthetics. Indeed, if it could always be reliably applied by trustworthy people, it might still become the safest anæsthetic yet discovered. Dr. E. Howard Kitching,[1] whose address on Suggestion and Hypnotism in Dental Practice was under discussion, mentioned the experiments in the last century of John Elliotson, who was obliged to resign from the staff of University College Hospital because of his interest in hypnotism; the experience of Dr. Esdaile, who performed painlessly more than 300 major operations, and an uncounted number of minor ones, on hypnotised patients before leaving England for India where he did many more; and Dr. James Braid, inventor of the term "hypnosis," whose honest and cautious approach almost put the subject on its feet as a legitimate study for doctors. Hypnosis was used as a dental anæsthetic by Dr. John Bramwell, at Hull, who, as Mr. Wookey recalled, used to send patients to his junior partner at Leeds carrying a slip of paper on which was written: "Go to sleep by order of Dr. Bramwell." As soon as this was read to them they complied, and enjoyed a painless extraction. The other side of the paper carried the rousing formula: "Wake up by order of Dr. Bramwell"—which was equally efficacious. This series of cases went on from 1888 to 1890, and—since many of the cases were clearances—accounted for hundreds of teeth. A command from the mere junior partner had no effect; and once, when the patient had lost his slip of paper, a telegram had to be dispatched to Bramwell, who telegraphed the formula in reply; it worked.

Dr. Kitching himself uses hypnotism on dental patients on occasion; but he noted that only a limited number of people can be brought to the deep hypnotic state appropriate for surgical purposes. Moreover he believes (though this opinion is not universal) that no amount of skill or effort on the part of the operator will induce deep hypnosis in a patient who is not sufficiently suggestible.

He follows the usual method of inducing hypnosis: the patient is persuaded to relax comfortably on a couch or in a chair, and to look at a small bright object held just above his eye level and about a foot away; it is then suggested to him in a monotonous voice that his lids are getting heavy, that he is growing sleepy, that his eyes are closing. A good subject will obediently close his eyes in a couple of minutes, and presently it is possible to tell him he cannot open them, and that the harder he tries the less he will be able to do it.

There are three recognisable stages of hypnosis. In light hypnosis the patient merely feels drowsy and comfortable without going to sleep; he knows he could open his eyes if he wished, but feels it would be too much trouble. About 90% of people, Dr. Kitching thinks, can reach this stage, and though it is of no value for dental surgery, it makes the patient receptive to therapeutic suggestions

1. *Brit. dent. J.* 1953, **95**, 229

—for instance, that things will all seem much less alarming at the next visit. He emphasises that there must be the expression of "an inner good will for the patient." The important thing, he says, with an acutely tense nervous patient (often a woman) is "to recognise that she despises herself for being so afraid, and that she badly wants to be understood, tolerated with uncritical patience, and not hurried." Dr. Kitching doubts whether this first state of relaxed suggestibility should be called hypnosis at all.

The second stage, of deep hypnosis, can be reached, it is variously estimated, by 10–40% of people. The patient really cannot open his eyes, and anæsthesia can be produced by suggestion. This stage is suitable for dental extractions. The third stage, hypnotic coma, resembles deep surgical anæsthesia, and is associated with total spontaneous amnesia. Major surgery can be done on patients in this stage, but probably less than 10% of people, Kitching thinks, can reach it. It has the advantage of bringing the autonomic functions of the patient under the influence of the operator: peristalsis, and the progress of labour, have both been modified directly by suggestion to patients in hypnotic coma, and salivation has been reduced in dental operations. It is not impossible that hæmorrhage could be checked in the same way.

Dr. Kitching's experience contradicts the common belief that ready subjects of hypnotism are all of low intelligence. He finds that, once the procedure and the reasons for using it have been explained to them, intelligent patients coöperate better than dull ones. But the truth is that hypnotism, though it is convenient and innocuous in honest hands, carries a good many practical difficulties. Not many practitioners have the temperament and interest to become skilled hypnotists; not many patients respond well enough to undergo treatment painlessly; and the chances of the two meeting are, as he says, rather remote. Chemical anæsthesia offers a useful if imperfect short cut to the desired end.

HYDROCORTISONE IN THE TREATMENT OF SPRUE

IDIOPATHIC steatorrhœa is usually well controlled by a high-protein diet with a restricted fat intake and administration of hæmatinics such as folic acid and vitamin B_{12}. In some cases, however, the patient's condition gradually deteriorates until eventually he dies. Such a patient may from the start have not responded to the usual therapy, or else the disorder has been well controlled for many years before getting out of hand. A few such cases may be controlled by a rigid gluten-free diet,[1] but many others are unaffected by this diet.

Since the rôle of the adrenal cortex in intestinal absorption has created much interest, it was natural that corticoid therapy should be tried in idiopathic steatorrhœa. Almy's [2] report of a successful result was followed by that of Adlersberg et al.,[3] who obtained satisfactory results in five cases with both corticotrophin and cortisone. Chester Jones,[4] who had equally satisfactory results in ten cases, concluded that this treatment was sometimes outstandingly successful. Badenoch,[5] at Oxford, was not so enthusiastic about the results with cortisone, while Cooke,[6] at Birmingham, obtained encouraging results with corticotrophin. It is evident that corticoid therapy does not cure the disorder. In occasional patients it brings about long-continued remissions; in the majority relapse ensues fairly soon after treatment is discontinued, but maintenance doses can be carried on for long periods with satisfactory control of symptoms.[7] It has also become evident that some patients will respond to intravenous administration of corticotrophin, but will relapse when, instead, cortisone is given by mouth.

Adlersberg et al.[8] have now reported their results with hydrocortisone (compound F) in seventeen patients. Two forms of this steroid were used—the acetate and the free alcohol—and these two substances were clinically "titrated" against corticotrophin and oral cortisone. The results were quite clear-cut. Hydrocortisone acetate, given in two courses by intramuscular injection and five courses by oral administration, caused almost immediate relapse in every patient, even though the dosage was higher than the effective dosages of corticotrophin, cortisone, or the free alcohol. The results with the free alcohol form of hydrocortisone, however, were similar to those with cortisone and corticotrophin; and the free alcohol had the advantage that it was effective in small doses without producing undesirable side-effects. Such an attribute is valuable, for side-effects are sometimes so troublesome as to cause the drug to be withdrawn before an effective therapeutic level has been reached.

WHEELS WITHIN WHEELS

"THIS book," says Mr. W. Grey Walter, D.SC., in his foreword to *The Living Brain*,[9] "is intended for general reading, for those who are interested in themselves and other creatures." Though many of us fall into his second class, and most of us into his first, the assertion may provoke some to reply (like the tragedian asked for change of half a crown): "While regretting that I am unable to oblige you, none the less I thank you for the compliment." For the book is very hard going: nor is this entirely the fault of the subject-matter. True, the exposition for the common reader of what we now know about the living brain would tax even the most limpid stylist; and limpid is precisely what Dr. Grey Walter is not. He is, however, a number of other agreeable things—amusing, allusive, literary, sophisticated, tangential, apt in simile, and—whenever he chooses—explicit. (His very luxuriance sometimes betrays him into inaccuracy: "Pekin man's acquaintance with the last of the dinosaurs" must surely have been of the slightest, seeing that the species missed each other by many a million years.) But despite his decorated manner he contrives here to tell the common man, and even the common doctor, much that they otherwise have little chance of hearing about recent research on the living brain; and it is a strange new world.

Perhaps the aspects of it which most impress the newcomer are the number and variety of techniques now in use for studying the brain's activities—any one of which, it seems, if explored fully, would occupy the lifetimes of many generations of searchers. Electro-encephalography supplies such abundant data that "only rarely does an observer use more than one-hundredth of one per cent. of the available information." Changes in the electrical activities of the brain, besides being traced laboriously by pens for later study, can be observed immediately as a series of flashing points, by means of the toposcope. In this instrument electrodes deliver the electrical changes in the brain to 22 small cathode-ray tubes, arranged in the display console to give "a kind of Mercator's projection of the brain." The flashing shuttles of Sherrington's "enchanted loom" are there visibly in action, and their behaviour can be photographed

1. Anderson, C. M., Frazer, A. C., French, J. M., Gerrard, J. W., Sammons, H. G., Smellie, J. M. *Lancet*, 1952, i, 836.
2. Almy, T. P. *Ann. intern. Med.* 1950, **34**, 1041.
3. Adlersberg, D., Colcher, H., Drachman, S. R. *Gastroenterology*, 1951, **19**, 674.
4. Jones, C. M. *Int. Congr. intern. Med.* 1952, p. 9.
5. Badenoch, J. *Brit. med. J.* 1952, i, 356.
6. Cooke, W. T. *Lancet*, 1953, ii, 425.
7. Colcher, H., Drachman, S. R., Adlersberg, D. *Ann. intern. Med.* 1953, **38**, 554.
8. Adlersberg, D., Colcher, H., Wang, C. *Arch. intern. Med.* 1953, **92**, 615.
9. London: Gerald Duckworth. 1953. Pp. 216. 15*s*.

as a permanent record, or checked against a pen tracing made simultaneously. In 1946 it was found that the information contained in E.E.G. records could be greatly increased by subjecting the brain to rhythmic stimulation—particularly by flickering a bright light in the eyes, whether these are open or closed—and it became necessary to devise an instrument (the electronic stroboscope) to deliver the flashes accurately at different rates without shortening their duration. Flicker can evoke, in 3–4% of normal people, E.E.G. responses indistinguishable from those previously regarded as diagnostic of epilepsy; and in some people these responses are associated with faintness, feelings of swimming in the head, jerking of the limbs in rhythm with the light, or unconsciousness. Since flicker is encountered in ordinary life by anyone driving a car past a set of railings or through an alley of trees when the sun is low and the light is coming through in level shafts, this observation has immediate practical significance: it may account for some accidents. Another effect of flicker is to produce vivid illusions of moving patterns, often in bright colours. This happens when the subject's eyes are closed. Normally when the eyes are closed, the E.E.G. records the alpha rhythm, which disappears when the eyes are opened; and which may therefore be a scanning mechanism searching for a pattern, and relaxing as soon as a pattern is found. Dr. Grey Walter draws an analogy from television, where a space-pattern is converted for transmission into a time-sequence of impulses by the scanning mechanism of the camera. The bizarre experiences of those exposed to flicker he likens to the interference with the scanning process which would result from illuminating the television studio with flickering light: the screen would then show blobs of light darting giddily about. He postulates similar confusion in the brain, where "the conflict between the two time patterns, the inherent scanning rhythms of the brain, and the flicker, produce a brain storm as wild as any distortion on the television screen."

Concurrently with all this, the new science of cybernetics has been contributing information about the processes of learning. The electro-mechanical creatures described here are the outcome of a growing understanding of the process of feedback—the automatic governing devices which enable machines (or for that matter reflex circuits) to regulate and stabilise their activities. The invention of the thermionic valve has made it possible to construct a reasonably trustworthy imitation of a reflex circuit, and hence to devise such mock-biological creatures as the goal-seeking and self-regulating *Machina labyrinthea* which can find its way home along its rails, coping with 63 "choice-points," and which—once it has achieved a successful return—will ever afterwards go directly home without error; or another maze-learning creature, "a sort of electro-mechanical mouse that fidgets its way out of confinement"; or *M. sopora* which only stirs when disturbed, and "then methodically finds a comfortable position and goes to sleep again." More elaborate still in its repertoire of behaviour is *M. speculatrix*, which explores its environment ceaselessly except while it is "feeding" (i.e., getting its batteries recharged), scans the horizon for light signals, and moves towards light of moderate intensity, avoids bright lights, material obstacles, and steep gradients, and does many other things which when we see them in animals we attribute to awareness.

From this background of new devices and all the possibilities for fresh research which they open up, Dr. Grey Walter goes on to discuss the ability of the brain, alone among organs, to learn and to remember. These attributes have been illumined by another machine CORA, the conditioned reflex analogue, which grafted on to *M. speculatrix* gives *M. docilis*, the easily taught machine. This he has conditioned to come to a whistle, by blowing a short blast and showing it a light until it has established a "sound means light" response; or has equally easily taught that "sound means trouble" by blowing the whistle and kicking the shell a few times until the machine shows the response "sound means dodge." But if a machine which has learnt such responses is subjected to conflicting stimuli (kicked when it is advancing in a "sound means light" response, for instance) it will give up its attempts to oblige and will lose the power of action—a neurotic response with which we are familiar in living animals. Moreover, it can be treated along orthodox psychiatric lines: by switching off all circuits and switching them on again, or by disconnecting a circuit altogether—by sleep, shock, or surgery, in fact. This machine, too, has taught something about three types of memory: the extension of the neural stimulus that ensures that when you step on a tack your foot, reflexly withdrawn, does not at once come down in the same place; the gradual accumulation (as in a condenser) of data about neutral and specific stimuli; and the evocable memory, perhaps maintained by electrical oscillations.

Dr. Grey Walter passes on to discuss personality, and also sleep, surveying the contemporary neurobiological scene, as he goes, and tracing its relations with the neighbouring fields of theoretical and applied psychiatry. It is a remarkable feat to have covered so much ground and conveyed so much information in so brief a space; and if the book is not fully satisfying that is mainly because it brushes so many philosophical problems, but never broaches them. Indeed in this respect Dr. Grey Walter behaves very much like *M. speculatrix* skirting a material obstacle; and he might well claim that, being conditioned as a scientist rather than a philosopher, he can do nothing else. This would hardly relieve the reader's disquiet, however. Civilisation seems to have been in safer hands when learned men were conditioned to be both.

HOW HARD CAN MAN WORK?

WEEKEND gardeners know that they can work at a rate which they could not possibly keep up if they laboured day after day and week after week. How hard can a man be expected to work regularly throughout the year? Nearly a century ago Playfair,[1] who based his views on the experiences of rural postmen and of infantrymen, suggested that throughout the year no man could do useful work on six days of the week equivalent to more than a 20-mile walk a day or a 14-mile march with a 60-lb. pack, without the risk of breaking down. This problem has more recently been studied by the Max Planck Institute for the Physiology of Work, at Dortmund.[2]

Müller[3] suggests that to prevent evidence of fatigue in a man doing physical work for eight hours a day, the intensity of the work and the duration of the rest pauses must be adjusted to give an over-all rate of energy expenditure of not more than 4 kcal. per min. (a net figure which does not include the energy of basal metabolism, amounting to just over 1 kcal. per min.). This he calls the endurance limit (E.L.); it is equivalent to walking continuously on the level at 3·8 m.p.h. Carrying a load of 50 kg. at 2·5 m.p.h. requires twice as much energy and can only be kept within the E.L. if rest pauses equal the working time. For work involving 12 kcal. per min. rest pauses equal to double the working time are necessary. Müller's suggestion involves a working capacity of 240 kcal. per hour and 1920 kcal. per day.

During the late war, Lehmann, Müller, and Spitzer[4] made an extensive survey of energy expenditure in

1. Playfair, L. *Proc. roy. Instn G.B.* 1865, **4**, 431.
2. See *Lancet*, Jan. 2, 1954, p. 35.
3. Müller, E. A. *Quart. J. exp. Physiol.* 1953, **38**, 205.
4. Lehmann, G., Müller, E. A., Spitzer, H. *Arbeitsphysiologie*, 1950, **14**, 166.

German industry, by means of indirect calorimetry and detailed minute-by-minute observations of working activity. The indirect calorimetry was facilitated by the development of a light portable respirometer.[5 6] This instrument, which can be worn quite conveniently on the back like a haversack, is a dry-gas meter which measures directly the volume of the expired air and at the same time collects an aliquot sample of this air in a football bladder for subsequent analysis. With this apparatus they measured the energy expenditure of 437 persons engaged in 167 different industrial occupations; the investigation covered all the heavy industries. It was found that only 45 men in 11 occupations were working at an over-all rate of 240 kcal. per hour (net), though on account of long working hours more were expending 1920 kcal. a day. The fact that such a small proportion of the men were expending physical energy up to the endurance limit reflects the high degree of mechanisation in war-time German industry. A parallel study in German homes [7] showed that the housewife with no source of power beyond her own muscles may work harder than some of the men in reputedly heavy industry, whose muscular efforts are confined to moving the switches and levers which control other sources of energy.

If, besides the 1920 work calories, we allow 1800 calories for basal metabolism and a further 500 calories for recreational and other activities, we get a total energy expenditure of about 4200 calories. (Much greater activity is sometimes found, though generally during a limited season only: Lundgren [8] reports many examples of daily energy expenditure in the region of 6000 calories among Swedish lumbermen in the spring and summer.)

Müller emphasises that his figure of 4 kcal. per min. gives only a rough idea of what man can do over a long period. The limit of energy expenditure is not the same for all kinds of work. Thus in work involving only a limited group of muscles (e.g., moving one arm) or the maintenance of awkward posture, endurance is not limited by the capacity of the heart and lungs to supply oxygen, but rather by the peripheral cross-section of the vessels open in the active muscles. In an endeavour to find a more sensitive measure of work intensity suitable for all types of work, Müller has made a detailed study of pulse-rates. For this he has developed an automatic pulse-counter.[9 10] The worker wears a light earring one part of which holds a small electric-light bulb and the other a photo-electric cell. The changes in the translucency of the lobe of the ear with each heart beat are recorded and counted by an electronic counter worn on the back. With work below the E.L. the pulse-rate in each person keeps to a constant level which is proportional to the energy-rate. Provided that recovery keeps pace with fatigue, the pulse returns to resting levels after only a few minutes, even when the work has lasted for hours. Fatigue is associated with a continuously rising pulse-rate, and return to normal takes an hour or more after work has been stopped. Since the completion of recovery is never sharp, recovery-time cannot be accurately determined. But the pulse-counter enables the number of pulses above resting level from the end of work till the end of recovery to be easily measured. This, the recovery pulse sum (R.P.S.), is a useful measure of fatigue.

In a laboratory study Müller showed that a man can work on a bicycle ergometer at 480 mkg. per min. for an hour without fatigue, and his R.P.S. remains below an endurance limit of 150; this is equivalent to easy bicycling on the level. If the work is increased to correspond to going up hill, rest pauses become necessary. If the man works at 960 mkg. per min, he needs rest pauses equal in length to his total working-time. At this level of work the distribution of the rest pauses is very important. When 3 ten-minute pauses were taken in the hour, after the completion of the work the R.P.S. was over 400 and fatigue was present; 15 two-minute pauses caused a fall in R.P.S. to about 300, but fatigue was still present. 30 one-minute pauses, however, gave an R.P.S. below the E.L. of 150, and this rate of work could be sustained without fatigue.

Müller has shown that these laboratory findings can be applied to the distribution of rest pauses in industry. Everyday tasks, such as carrying heavy loads or shovelling, can be kept below the fatigue level with suitably spaced pauses. In all types of physical work new apparatus has made it possible to measure under industrial conditions oxygen uptake and the recovery pulse sum, and to equate the results against the standards of endurance now proposed. As a result it should be possible to plan physical work so as to provide for effort of any particular intensity the rest pauses necessary to prevent undue fatigue. Working capacities can also be accurately defined. Müller's E.L. of 4 kcal. per min. is equivalent to about 30 miles of level walking in an eight-hour day. Even allowing for the hills and the mail-bag, it would seem that modern Germany has a higher standard than that which Playfair set for postmen 90 years ago.

The Dortmund physiologists have laid down rough limits of working capacity up to which a "man in overalls" might be expected to exert himself and beyond which he should not be expected to be efficient. As yet there is no sign of either physiologists or psychologists devising equivalent methods of assessing the labours of the "white-collar" worker.

5. Kofranyi, E., Michaelis, H. F. *Ibid*, 1940, **11**, 148.
6. Müller, E. A., Franz, H. *Ibid*, 1950, **14**, 409.
7. Droese, W., Kofranyi, E., Kraut, H., Wildemann, L. *Ibid*, 1949, **14**, 63.
8. Lundgren, N. P. V. *Acta physiol. scand.* 1946, **13**, suppl. 41.
9. Müller, E. A., Reeh, J. J. *Arbeitsphysiologie*, 1950, **14**, 137.
10. Müller, E. A. *Ibid*, p. 271.

UNIVERSITY GRANTS COMMITTEE

THE University Grants Committee has been reconstituted and Mr. K. A. H. Murray, PH.D., rector of Lincoln College, Oxford, has been appointed chairman. This post is full-time and permanent. The other members of the committee are part-time and will hold office for limited periods.

Sir David Hughes Parry, LL.M., director of the University of London Institute of Advanced Legal Studies, has been reappointed vice-chairman. The other members are: Prof. E. D. Adrian, O.M., F.R.C.P., P.R.S., master of Trinity College, Cambridge; Dr. W. Melville Arnott, F.R.C.P., William Withering, professor of medicine, University of Birmingham; Mr. J. F. Baker, SC.D., professor of mechanical sciences, University of Cambridge; Sir George Clark, D.LITT., provost of Oriel College, Oxford; Prof. J. W. Cook, D.SC., F.R.S., the newly appointed principal of the University College of the South West and a member of the Guillebaud Committee; Sir Geoffrey Heyworth, chairman of Unilever Ltd.; Mr. E. J. F. James, D.PHIL., high master of Manchester Grammar School; Prof. W. R. Niblett, B.LITT., director of the University of Leeds institute of education; Dr. G. W. Pickering, F.R.C.P., professor of medicine in the University of London at St. Mary's Hospital Medical School; Mr. E. L. Russell, M.A., chief education officer of the City of Birmingham; Mr. H. G. Sanders, PH.D., professor of agriculture, University of Reading; Mrs. J. L. Stocks, formerly principal of Westfield College, University of London; and Mr. T. E. Wright, M.A., professor of humanity and dean of the faculty of arts, St. Andrews University. There is one appointment still to be made.

Public Health

GASTRO-ENTERITIS IN INFANCY IN LONDON

IAN TAYLOR
M.D. Lond., M.R.C.P., D.P.H.
PRINCIPAL MEDICAL OFFICER (EPIDEMIOLOGY), PUBLIC-HEALTH DEPARTMENT, LONDON COUNTY COUNCIL

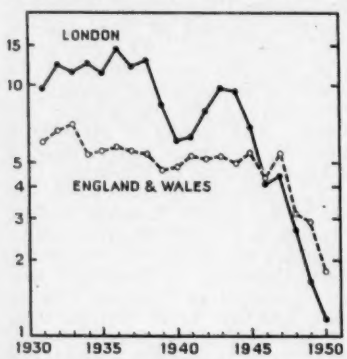
ONE of the most striking changes in the vital statistics of London in recent years is the fall in the death-rate from diarrhœa and enteritis among children under the age of two years. The trend during the last half-century

TABLE I—LONDON DEATH-RATES FROM DIARRHŒA IN CHILDREN UNDER 2 YEARS

Period	Deaths per 1000 live births	% of 1931–35 rate
1891–95	23·8	205
1896–1900	41·3	356
1901–05	30·4	262
1906–10	23·8	205
1911–15	28·0	241
1916–20	15·4	133
1921–25	11·7	101
1926–30	10·2	88
1931–35	11·6	100
1936–40	10·9	94
1941–45	8·0	69
1946–50	3·0	26
1946	4·1	35
1947	4·5	39
1948	2·7	23
1949	1·7	15
1950	1·2	10
1951	0·8	7

is shown in table I, from which it is seen that the rate of improvement has been more rapid since 1930.

The underlying causes of this improvement are complex. Improved social conditions, better nutrition, priority-milk schemes, and better medical care might all reasonably be expected to lead to a fall in the death-rate from this infection. But the steep fall in the rate began only in 1945, some years after the priority-milk scheme had been introduced, and the rate of improvement has been greater in London than in the rest of the country (see figure) where comparable social changes have taken place, which suggests that other causes peculiar to London have also been at work. Where there are multiple causes it is not easy to assess the effect of any one of them, and without knowing the cause of the fall it is impossible to say whether the present low rate is permanent or temporary. The statistical delicacy of the situation is shown by the fact that the 12 deaths from infantile enteritis occurring in London during the last four weeks of 1952 (beginning with the week of the cold fog) were enough to increase the death-rate from this cause for the whole year by nearly 50%.



Deaths from enteritis (under 2 years) per 1000 births.

Until five years ago most of the large cities had enteritis death-rates well above that of the country as a whole. In recent years in many of them the rate has fallen to the level, or below the level, of that for England and Wales (table II).

The main variations of the London rate during the last twenty years are set out in table III, which shows:

(i) A considerable fall in 1939 and 1940, which did not occur in the rate for England and Wales.
(ii) A rise during 1942 and 1943, which is also absent from the figures for England and Wales.
(iii) A most striking fall from 9·9 in 1943 to 1·2 in 1950. This reduction has been more extensive and rapid than in the rest of England and Wales.

Possible Reasons for Decrease

For the cause of the fall and rise in the rate between 1939 and 1943 we need look no further than the population changes in London due to the evacuation and return of children. Of particular significance are the changes in the number of births and in the proportion of the population under five years of age. The changes in the death-rate from enteritis corresponded to changes in the proportion of susceptibles in the population.

The causes of the fall in the rate since 1943 must, however, be different, because this change began at a time when the population, number of births, birth-rate, and proportion of the population under five were all steadily increasing.

Improved Treatment

There is evidence that part of the fall in mortality from enteritis is due to better therapy. Chemotherapy and antibiotics have been used in the treatment both of the intestinal infection and of the parenteral infections underlying some enteritis attacks. Improvements in the technique of treatment of dehydration, particularly by the use of intravenous-drip saline infusions have undoubtedly saved lives. Intravenous infusions were used before the war, but their general use was stimulated by the publication of a number of papers in 1943 which clearly demonstrated the efficiency of this method. It is interesting, therefore, to note that the fall in the enteritis death-rate in London began in 1944 and was well established in 1945, although at this time the birth-rate, the proportion of children under five, and the notification-rate were all increasing. It is thus reasonable to suppose

TABLE II—ENTERITIS DEATH-RATES FOR FOUR ENGLISH CITIES IN 1945 AND 1950

—	Deaths from enteritis under 2 years per 1000 live births	
	1945	1950
London	7·0	1·2
Birmingham	7·8	2·2
Manchester	7·3	3·0
Liverpool	9·1	2·6

that the beginning of the downward trend in mortality was associated with better treatment.

Improved therapy no doubt also contributed to the continued fall in the death-rate, but there are reasons for thinking that it was not the only cause. A recent survey of gastro-enteritis admissions to a hospital showed that about one in five of the patients was regarded as being ill enough to justify parenteral therapy. Before the war the case-fatality rate in the London hospitals was about 20% of admissions. Unless it is assumed that all the infants at present receiving intravenous therapy would have died without this treatment, one is led to the conclusion that the proportion of severely ill patients admitted to hospital is smaller than in pre-war years.

Dried Milk for Infants' Feeds

It is reasonable to suppose that the danger of infection from a feed made from dried milk is less than from one

made from liquid milk which may have been in store for some hours before use. The increasing use of dried milk might thus be expected to reduce the incidence of enteritis. It is not easy to estimate the changing fashions in infant-feeding in recent years. Each year since 1947 the ratio of the number of tins of National Dried Milk issued in the Greater London area to the number of births has been roughly double the figure for 1945 and 1946. But this may mean that mothers may be using National Dried Milk instead of proprietary brands rather than that they have changed from liquid to dried milk.

TABLE III—VARIATIONS IN LONDON FIGURES IN TWENTY YEARS

—	Enteritis death-rate under 2 years per 1000 live births		London population (×1000)	London births	London birth-rate per 1000 population	% of London population aged 0–5 years
	London	England and Wales				
1931	9·7	5·9	4374	65,684	14·9	6·8
1932	12·5	6·6	4357	62,233	14·3	6·7
1933	11·7	7·0	4298	56,743	13·2	6·6
1934	12·8	5·4	4230	56,853	13·4	6·4
1935	11·3	5·6	4185	55,780	13·3	6·7
1936	14·5	5·7	4141	56,273	13·6	6·2
1937	12·3	5·5	4094	55,011	13·4	6·1
1938	13·2	5·3	4062	54,495	13·4	6·1
1939	8·4	4·6	3800	52,366	13·4	5·6
1940	6·1	4·7	3236	46,213	14·3	4·4
1941	6·3	5·2	2507	33,944	13·5	3·1
1942	8·0	5·2	2634	40,654	15·4	5·2
1943	9·9	5·2	2794	45,030	16·1	6·4
1944	9·6	4·9	2753	44,554	16·2	6·3
1945	7·0	5·5	2906	45,532	15·7	6·5
1946	4·1	4·2	3272	65,883	20·0	6·9
1947	4·5	5·4	3409	71,323	20·9	7·6
1948	2·7	3·1	3397	60,934	17·9	8·0
1949	1·7	2·9	3389	56,545	16·7	8·1
1950	1·2	1·8	3389	53,281	15·7	8·1
1951	0·8	1·3	3358	52,387	15·6	8·1

The connection between the post-war fall in the enteritis death-rate and the use of dried milk for infants' feeds remains uncertain.

District Variations

The death-rate from enteritis varies in different parts of London, and the comparison between two groups of boroughs in South-east London is illuminating. Bermondsey, Southwark, and Deptford all have a high proportion of old dwellings of pre-by-law type which are being replaced by new many-storeyed flats. Lewisham and Woolwich, on the other hand, both have a high proportion of fairly modern cottage-type dwellings. Housing is of course only one of many social and environmental factors dividing the two groups of districts. The enteritis death-rates in the periods 1931–35 and 1945–49 are shown in table IV. Although the rate in Lewisham and Woolwich is still lower than that in Bermondsey, Deptford, and Southwark, the degree of improvement in the first group is less than in the latter.

Migration

Selective rehousing, by attracting to housing estates outside the county numbers of families which for various reasons might have been susceptible to enteritis, may also tend to reduce enteritis mortality. But if this factor were important the trend of the rate for the outer ring of London should be roughly the reciprocal of that in the County of London itself. The figures in table V do not support the hypothesis, for the changes in the death-rate in London are accompanied by similar variations in the outer ring.

TABLE IV—DEATH-RATES FROM ENTERITIS IN CHILDREN UNDER 2 YEARS IN VARIOUS PARTS OF LONDON

Groups of Metropolitan boroughs	Deaths per 1000 live births	
	1931–35	1945–49
Bermondsey, Southwark, Deptford	11·25	3·64
Lewisham, Woolwich	5·45	2·55

TABLE V—DEATHS FROM DIARRHŒA IN CHILDREN AGED 0–2 YEARS PER 1000 LIVE BIRTHS

—	1946	1947	1948	1949
Administrative county of London	4·1	4·5	2·7	1·7
Greater London, less administrative county	2·4	3·1	1·6	1·2
England and Wales	4·2	5·4	3·1	2·9

Changing Incidence

Over longer periods the incidence of most infectious diseases varies for reasons apparently independent of social and environmental changes, and it is possible that the recent fall in gastro-enteritis mortality may be due in part to fall in the incidence of the disease.

Gastro-enteritis is not notifiable throughout the whole of London, and accurate figures of incidence are therefore not available. Even in the Metropolitan boroughs where it is notifiable the figures must be viewed with some reserve, for the doctor's decision on which attacks of diarrhœa in infancy are to be notified to the medical officer of health must be arbitrary. The notification-rates in the boroughs of Paddington, Kensington, Greenwich, Poplar, and Woolwich during the period 1940–45 (table VI) show that the fall in incidence, as judged by notifications, did not begin until 1946, when the death-rate from gastro-enteritis had already been falling for three years. Since then, however, a lower incidence appears to have been one of the causes of the falling death-rate. This conforms with the observation that the severe epidemic form of gastro-enteritis in nurseries has been less common in recent years. The fact that the prevalent mild form of dysentery spreads easily in nurseries suggests that the rarity of gastro-enteritis epidemics is due to reduced prevalence of the causative micro-organism rather than to improvements in hygiene.

TABLE VI—NOTIFICATIONS OF GASTRO-ENTERITIS (PER 1000 CHILDREN AGED 0–4 YEARS) IN FIVE BOROUGHS

Year	Notification-rate	Year	Notification-rate
1940	65	1946	134
1941	130	1947	140
1942	150	1948	98
1943	126	1949	92
1944	140	1950	77
1945	206	..	..

Conclusion

Gastro-enteritis has always been associated with poor social conditions; but "the truth is rarely pure and never simple," and it is not easy to relate changes in mortality to *individual* social and environmental factors. Improved treatment, better social conditions, and health education have probably all contributed to the fall in mortality. Nevertheless the fact that the rate of improvement in London has been more rapid since 1945, and greater than in England and Wales generally, suggests that diminished local prevalence of the infecting micro-organism may also have contributed to the reduced mortality. Whether this reduction in incidence has come to stay remains uncertain.

I am indebted to Dr. J. A. Scott, medical officer of health for the County of London, for suggesting the publication of this note, which is based on a report submitted to the health committee of the council.

Special Articles

MENTAL NURSING

CONFERENCE AT THE ROYAL COLLEGE OF NURSING

BRITISH spinsters, whether young or of riper years, are nowadays much sought after—by hospitals, social services, industry, and all offices needing secretarial help. There are not enough of them to go round; and those who seek to gain their services must be able to offer good prospects (immediate or remote), good conditions of service, or work with a popular appeal—or preferably all three. This puts the mental hospitals in an awkward position, as speakers at last week's conference on mental nursing repeatedly pointed out and illustrated from their experience. The conference was arranged by the Royal College of Nursing, and Mr. RAYMOND PARMENTER presided.

PLENARY SESSIONS

Dame ENID RUSSELL-SMITH (under-secretary, Ministry of Health) said that since 1948 State-registered nurses (S.R.N.S) in our mental hospitals have increased by 1442, State-enrolled assistant nurses (S.E.A.N.S) by 42, nursing assistants (N.A.S) by 2853, and domestic staff by 3126. Student nurses, however, have fallen by 1530. The net staff increase has been 5928 against an increase in patients of 11,597: which is good as far as it goes. The prospects for future staffing, however, are poor unless we can attract, and keep, more students. The wastage of students was assessed by the Working Party at 80%, and is now thought to be about 65%. Students leave for family reasons, because they turn out to be unsuitable, or because they are dissatisfied with the pay (but arbitration is pending about this) or with the conditions of work or with the teaching and training they are given. The best students are those most easily discouraged by unsatisfactory training. The Ministry of Health has urged that more nursing assistants should be recruited: there are already over 10,000 of them in the mental hospital service (whereas there are only 174 S.E.A.N.S) and we are relying on them to help us over this difficult time. They should be given better and more systematic training than they have at present. Meanwhile the Ministry is willing to spend all the time and money it can on recruitment of students, and has appointed two nursing officers who will find out where good work is being done and pass on the news. Dame Enid urged that the training of a State-registered mental nurse (S.R.M.N.) should make her fit to fill any post in mental nursing: she should not need to be doubly qualified.

Miss P. LOE (matron, St. James' Hospital, Portsmouth) said that though some who enter mental nursing do not like it, others find it rewarding and satisfying from the start. St. James' Hospital, Portsmouth, is fully staffed, but the wastage of students is nearly 60%. They leave for health or domestic reasons as a rule, and some who marry remain as N.A.S. Most of them are non-resident—partly because there is no nurses' home but chiefly because Miss Loe thinks it good for them to live out. Recruitment is fostered by talks to women's Rotary clubs and guilds, and by holding open days at the hospital. When she herself started mental nursing, she said, the pay was 70% higher than that of general hospital nurses, and the hours were less by 8 a week. This difference, of course, has vanished. She described her successful nursing cadet scheme: some of her best student nurses are recruited through this scheme.

Dr. JOSHUA CARSE (medical superintendent, Graylingwell Hospital, Chichester) asked how many trained staff are needed in a mental hospital. Some three-quarters of the hospital population are in the "long-stay" class, and about two-thirds are able-bodied, and in open wards which—because the patients are employed or attending entertainments—are empty all day and in the evening. Only a quarter are short-stay patients, remaining in for 4–8 weeks for treatment. Not all the staff need be fully trained: the work can be done with a large proportion of N.A.S, a fair number of S.R.M.N.S, and a small number of doubly qualified staff. He urged the need for more labour-saving equipment, and more orderlies, so that the nursing staff might be nursing, not cleaning. Recruitment, he felt, should depend on local effort, and he too advocated open days, because "the mental hospitals have nothing to be ashamed of." He regretted the falling off in male student nurses in recent years—chiefly because they cannot afford to keep their families on their pay. Could National Service, he asked, be deferred until the male student had completed his training? Or could his salary be raised? He spoke of the strong feeling among mental nurses at their lack of professional status, and recalled that they are not eligible for full membership of the Royal College of Nursing.

Dr. J. C. SAWLE THOMAS (regional psychiatrist, North East Metropolitan Regional Hospital Board) suggested that psychiatric nursing was not concerned solely, or even mainly, with patients undergoing special technical treatments, or with sick patients, but with "the hard core of chronic mental cases who need skilled nursing to prevent deterioration." Advances in mental treatment, he said, have to some extent obscured their fate; and added that the chronic wards are not shown to visitors so readily as those for short-term cases. The rehabilitation of the chronically ill mental patient is a matter of human relations, and those who undertake it need experience, and perhaps capacity, outside the scope of the general-trained nurse. He suggested that they should have the name of "psychiatric nurses," and that they need special training to enable them to give the patients occupational therapy (under guidance), to work in out-patient departments and day hospitals, take part in extramural activities such as patients' clubs, and to supplement the work of the psychiatric social worker (P.S.W.) by visiting patients in their homes, and reporting their observations. He believes that at present we lose many prospective nurses who would be fit for such a training, and whose interest, energy, and enthusiasm would benefit patients.

Miss W. DAVISON (matron, Moorhaven Hospital, Ivybridge, Devon) gives her student nurses three months in each department of the hospital—occupational therapy, group therapy, child guidance, nursing wards, and non-nursing wards—and also sends them out visiting with the P.S.W. The hospital has beds for some 400 elderly women; and these old people are often physically as well as mentally ill. Then there are short-stay wards where the nurse gets experience of modern treatment by insulin, brain surgery, prolonged narcosis, and so on. Students are selected by the matron and sister-tutor at interview, and intelligence-tested. They go for preliminary training to a joint school with the students of three other hospitals—fever, orthopædic, and tuberculosis—and it is the pride of Moorhaven that they have never lost a candidate at this school, but have in fact won 2. Miss Davison recalled the industrial motto: "The better the bargain, the longer the queue." This hospital has open days, and also prize-giving days for nurses. There is a flourishing cadet scheme, cadets entering at 17 but never putting a nose into a ward until they are 18: they spend their time in the matron's office, the superintendent's office, the pathological laboratory (where they learn among other things how specimens should be taken), and the dispensary (where they learn how medicines are dispensed). 3 vacancies were advertised for the first course and there were 27 applications. N.A.S, in this hospital, are given lectures on practical subjects, but though they are interested they do not want to take a formal training. Most of

them are married and have small children, and their life is centred outside the hospital. If a register were started for State-enrolled mental assistant nurses Miss Davison would not wish to include a training-school for them in the hospital. She feels it would be difficult to fit them in with students training for the mental register.

Mr. P. M. LLOYD (chief male nurse, Rainhill Hospital) looked back to the days when there was no training or status for the "attendant" on the insane—and not the same skilled sedation for patients, either. He thought there was a great need for N.A.S in the care of long-stay patients. Only a limited number of nurses, he pointed out, can be engaged with new techniques requiring a high degree of skill and a lot of glass-and-rubber-tubing. With 600 nurses on a staff, there would not be enough patients (let alone enough tubing) for them all to be trained in such procedures. But the nursing skill of the N.A., he reminded his hearers, can be of the highest type of mental nursing. It calls for kindness and for human qualities which can be used to achieve recovery, in appropriate cases, just as well as technical measures; and he illustrated his point by the story of an attendant, who, by his willingness to accept instruction in Esperanto, helped the irascible headmaster of a great public school to recover his sanity. Incidentally, the whole ward was finally attending the old tyrant's classes in Esperanto, and talking very little else, to the great confusion of visitors. Many men candidates who are not accepted as student nurses, Mr. Lloyd said, would make good N.A.S; but they refuse because of the lack of prospects and status. He therefore believes a State roll of assistant mental nurses would be worth trying, and might bring in the people we are losing.

The CHAIRMAN agreed that the main problem was that presented by the long-stay patient, and mentioned another industrial slogan: "Study the customer."

Mrs. B. A. BENNETT (principal nursing officer, Ministry of Labour and National Service) recalled that since 1938 the working population has increased by 2 million people, and 1 million of these are women. There has been an increase of over 4000 in the total nursing staff of our mental hospitals since then, but a fall of 1685 in the number of students. But there has been a drop in the numbers of young people, and the question is how many are we justified in asking for, for mental nursing? Until 1962 we shall have 10,000 reaching 18 every year. Then there will be five golden—or at any rate silver—years when the increase of the birth-rate of 1944–49 will be having its effect. She suggested that we might plan for these years now—plan now to attract recruits and stabilise recruitment. There are five ways of remedying the shortage in the student age-group: by recruiting below the age (as in cadet schemes); by recruiting above the age; by recruiting abroad; by attracting students from other jobs by publicity; and by dilution. Her Ministry, she said, is willing to help in every way it can with local campaigns, and is preparing new leaflets and posters.

Dr. R. F. TREDGOLD (physician in psychological medicine, University College Hospital) suggested that we could use psychological advice in attracting and retaining staff. "Man-management" is studied in the Forces; and most managers in industry would be shocked by the labour turnover in mental nursing, and would ask a research team to investigate it. He mentioned the authoritarian structure in hospitals, which, he said, appealed little to young people accustomed to the democratic structure of ordinary life in this country. He also noted that while doctors always feel how helpful nurses are this feeling is not reciprocated. The doctor does not tell nurses enough, or teach them at the bedside. He thought doctors are partly to blame for this, but that the nurses are blameworthy too. They have the responsibility of asking for instruction if they want it.

Miss B. A. C. MICHELL (matron, St. John's Hospital, Stone, Aylesbury) discussing the General Nursing Council syllabus for the student for the mental register, said she would have liked more break with tradition, more case-studies, fewer formal lectures, more going out of hospital. She emphasised the great importance of the help and interest of the medical staff; and spoke of the improvement an enthusiastic doctor had wrought in training; unfortunately this had lapsed when she left. She also spoke of the value of refresher courses for senior staff, especially if these were given somewhere outside the hospital ("other people are so much more convincing"). For those holding higher appointments she thought a course in administration of more value than general training: for the mental nurse is not at some half-way stage towards a general nurse—she is a psychiatric nurse in her own right.

Mr. W. K. NEWSTEAD (principal nurse tutor, Bracebridge Heath Hospital, Lincoln) said that if we are to satisfy the needs of the patient we must first satisfy the needs of the nurses. He was not in favour of cadet schools, believing that young people of 16 should be anywhere rather than in hospital. To teach the skills required of a nurse all the members of the psychiatric team are needed, and some are not pulling their weight. Nor is the status of the mental nurse satisfactory: he had seen student nurses being used in hospitals to empty rubbish-bins and clean corridors and windows. In at least five hospitals he has visited recently, senior student nurses have no access to patients' case-sheets. Again, some hospitals will not allow their students more than an hour a week to attend lectures. He thought very well of the syllabus, however, which, he said, allows of liberal interpretation.

GROUP DISCUSSIONS

The group discussions which followed the papers each day aired a multitude of points. Thus there was a general feeling that recruitment campaigns are expensive and unfruitful: one which roused great interest brought a large increase in voluntary patients but not a single recruit. Many hospitals have already raised their recruitment age—even up to 40. Many speakers felt that if we could offer more attractive salaries, able to compete with those of industry, we could have the pick of the best young people in the country; and they would rather see money spent in this way than on recruitment campaigns. Open days were not favoured by some, merely because of the dismal and delapidated appearance of their hospital buildings. Many, too, felt that recruits are being lost because nurses' quarters are so bad in some hospitals: a student resents paying £108 for board and lodging, when he is lodged in a single room stuck in the corner of a ward. While such conditions exist, these speakers thought, it is barely honest to indulge in recruitment campaigns; and they quoted yet a third slogan from industry: "Never advertise if you haven't got the goods."

SUMMING UP

In his final summary, the CHAIRMAN concluded that the conference favoured some form of training of N.A.S but that opinion differed on whether there should be a register. Among long-term measures it had been suggested that the care of the aged mentally sick should be reorganised, and that perhaps they ought to be segregated from other patients. There was a feeling that general and mental training should be brought closer to one another. From the patient's point of view aftercare should be better integrated with hospital treatment. The outstanding problem was one of human relations, and he strongly urged the need for an objective survey of mental nursing.

Miss PATRICIA HORNSBY-SMITH (parliamentary secretary, Ministry of Health) spoke warmly and pleasantly of the new approach we are making to this problem, of the waiting-list for our mental hospitals, and the overcrowding in them, and of the £1 million which the Minister has allocated to the provision of more beds in mental hospitals and mental-deficiency hospitals. But staff is the first necessity. The public, and particularly parents, must be helped to understand that mental nursing can provide as satisfying a career as any other kind of nursing: and that it is a matter of treatment, not of custody.

Management of Burns

A series of six articles prepared by a subcommittee of the British Association of Plastic Surgeons *

IV. TECHNICAL PROBLEMS OF FREE SKIN-GRAFTS

INSTRUMENTS

FOR most purposes the *Blair type of razor* of wafer steel fitted into a light handle is the best. The Humby modification gives control of the thickness of skin cut and Bodenham's variation reduces maintenance costs by using detachable blades. All these can be sterilised without loss of cutting power by boiling for two minutes. They are used in conjunction with one or more grafting boards to flatten the skin of the area chosen as the donor site for the graft. For all ordinary purposes the thighs make the best donor sites, though the inner aspect of the upper arm is useful for small grafts or when it is particularly desired to avoid hair. If these areas are not available, the chest, abdomen, or back can be considered, although free-hand skin-graft cutting from these sites is not easy. Before using the razor, the surgeon positions the limb so that it presents him with the maximum flat surface. A board of wood in his left hand steadies and flattens the surface, whilst the razor is moved with a gentle sawing movement until it begins to bite. The two hands move slowly along the limb, the board and the leading edge of the razor being $^1/_2$ in.–$^3/_4$ in. apart.

Padgett's dermatome, although rather more complicated in its use, has the advantage that it cuts an accurately calibrated graft and that it will remove such a graft from practically any surface whether concave or convex. The instrument consists basically of a half-cylinder, 4 in. wide and 8 in. long. The clearance between the drum and the knife is adjustable. The application of a special cement to the drum and to the skin of the donor area enables the two to adhere, so that the graft when cut covers the drum. The procedure can be more difficult than it sounds, in that neither the depth-gauge nor the cement are foolproof; and thin grafts cannot be removed from the drum without a special technique.

The *electric dermatome* cuts strips to a maximum width of 3 in. and their length is limited only by the donor area available. No cement is necessary and a mineral oil, such as paraffin, provides adequate lubrication. There is no other instrument to touch this one in the treatment of extensive burns, for it will remove very thin grafts and its donor areas are good and trouble free. Furthermore it can take skin swiftly and surely from any part of the body. Very little experience in its use is required to ensure proficiency.

TYPES OF GRAFT

The grafts most often used for the early resurfacing of burns are of intermediate thickness. Such grafts can "take" in spite of some mild surface infection and they leave better donor areas than do thicker grafts. When, however, complete excision of a burn can be carried out, and the base thus converted into a clean wound, a more definitive repair may be indicated, and for these a thicker type of graft is permissible. These thicker grafts are similarly used for the correction of scar contractures at later stages in the repair.

After the cutting of a partial thickness graft, the donor area epithelialises rapidly and should be healed within ten to fourteen days. There is, however, seldom any indication to disturb the dressing in less than fourteen days. If by accident the fat beneath the skin in the donor area has been exposed, then it should be immediately covered, either by direct suture or by the application of a small graft from elsewhere. This accident will render the area unsuitable for further grafting and healing will be delayed. In most instances, however, donor areas can be used a second time within twenty-one days; but subsequent grafting is facilitated if only one limb is used at a time, and though this is not always possible, it should be borne in mind.

STORAGE OF SKIN

Any graft, either autogenous or homogenous, that is not immediately required can be stored for later use. It should be spread on wide-meshed 'Vaseline' gauze and folded on itself so that the raw surfaces are together, rolled into a compact bundle, enclosed in a swab moistened in normal saline, and finally placed in a small sterile specimen jar or tube. This is sealed and placed beneath the ice-box in a refrigerator, where it should be kept at a constant temperature of 32°–34°F. Such grafts can usually be used with satisfactory results up to about three to four weeks after cutting.

HOMOGRAFTS

The transference of skin from one person to another meets with unqualified success only when the two are identical twins. In other cases, such grafts have limited value only. Though the initial take of these grafts seems satisfactory, they remain viable for only fourteen to twenty-one days. After this they ulcerate, separate, and are lost. Apparently the recipient becomes sensitive to the foreign transplant, for a second application from the same donor usually lasts for a much shorter period, and a third transplant may never adhere at all. It has been shown, however, that if homografts are placed in marginal contact with autografts, they can assist epithelialisation. It appears that epithelium from the autografts invades and replaces the homografts. It is also suggested from both clinical and animal experiments that multiple donors are preferable to single donors, since the reaction of the recipient to multiple grafts from several donors is less violent than it is to grafts from a single donor. Homografts are especially useful in small children and in those adults in whom donor areas are insufficient to provide early complete skin cover by autografts.

GRAFTING OF GRANULATING AREAS

Only the simplest type of grafting procedures are indicated in granulating areas. The granulations must be free from excessive discharge and slough and their surface should be smooth and pink. Such areas are rarely bacteriologically clean, and the organisms commonly present are:

(*a*) *β-hæmolytic streptococci.*—The proteolytic enzyme produced by these organisms can digest any free epithelial graft and their presence on a granulating area is the commonest reason for failure.

(*b*) *Staphylococcus aureus.*—These organisms are dangerous to the survival of a graft because of the quantity of discharge they produce from the surface of the area to be grafted.

* The members of the subcommittee are: Mr. R. J. V. BATTLE, Mr. PATRICK CLARKSON, Mr. RAINSFORD MOWLEM, Mr. ROWLAND OSBORNE, and Mr. A. B. WALLACE. They are glad to acknowledge assistance from Mr. A. D. R. BATCHELOR and Mr. R. L. G. DAWSON.

(c) *Gram-negative bacilli.*—Pyocyaneus and proteus are often found together. They produce a profuse and offensive discharge which is likely to be responsible for failure of the graft. They are essentially organisms which thrive best on moist wounds, so that any treatment which tends to produce a dry surface is a help. After grafting, dryness is encouraged either by avoiding all dressings or by their early removal.

The sensitivity of any or all of these organisms varies very considerably and the uncontrolled use of an antibiotic is valueless. The local or parenteral application of an antibiotic of known efficacy against the particular contaminant is, however, useful during the forty-eight hours before and after operation.

TECHNIQUE OF GRAFT APPLICATION

Granulating Areas

When discharge is profuse in spite of all treatment, the epithelium is best applied as *patches* or strips of about postage-stamp size, which will survive independently of one another. These *patch* grafts are made by cutting up sheets of thin or intermediate split grafts. The general plan of the operation is as follows:

The donor site of the graft must be prepared as before any operation.

First step.—The graft is cut as the first step in the operation, in order to avoid contamination of the donor area. The donor area is dressed with vaseline gauze, dressing gauze, cotton-wool, and a sterile bandage.

Second step.—The area to be grafted is now exposed. If the granulating area is relatively clean and the granulations are healthy and flat, there is no need to remove them. If they are pale, exuberant, and discharging unduly, they may be removed by dissection to expose a healthy base. Hæmostasis with iced saline packs is then necessary before application of the grafts. The grafts are then applied with their raw surface towards the granulations. In general, grafts should be placed almost touching each other. Where the supply of skin is unequal to the demand, they can be spaced out to their own width apart or separated by homografts one from another.

Third step.—The entire grafted area is covered with wide-meshed vaseline gauze and dressing gauze. This layer can be separately fixed by painting the healthy skin round the area with 'Mastisol,' so that the first turn of the bandage is cemented to the skin.

A thin layer of wool is applied and pressure maintained by a crêpe bandage. If a limb is being grafted, immobilisation with a plaster slab is advisable. The hand, of course, is normally immobilised in the position of function, although, in young children with burns of the palm, extension of the fingers can be prolonged without subsequent loss of the power of flexion.

Bacteriologically Clean Areas

There is at present a tendency to favour early excision of burned areas. The surgeon is then faced with a clean area to graft as opposed to the granulating area described above. It must, of course, be remembered that these areas are potentially infected and that systemic chemotherapy may be necessary.

Hæmostasis is essential but may be difficult to secure. The ideal to be aimed at is a graft which is immediately adherent and therefore requires no suturing or pressure bandages as a protection against subsequent displacement. Indeed, grafts will take without dressings, but they are unlikely to do so if the surgeon is pressed for time, if reactionary hæmorrhage is probable, or if movement of the part is uncontrolled.

The graft is spread, raw surface uppermost, on tulle gras. If it has been impossible to cut one single sheet of skin sufficiently large to cover the entire defect, smaller pieces may be overlapped to produce the necessary area. The entire sheet of gauze is picked up, turned over, applied to the raw area and fixed in position by marginal sutures.

Accurate pressure is applied to the graft by layers of wool wrung out in an emulsion of flavine and paraffin or in saline. The ends of the marginal stitches should be left long and brought out over this pack and tied together, so that the graft and pack are fixed firmly to the raw area. The dressing is completed by a generous layer of gauze and wool and covered by a crêpe bandage. It may often be desirable to immobilise a limb by a light plaster slab.

Special Areas

Dental composition—e.g., Stent's—can be used to good effect, particularly where there is a fixed base, as, for instance, on the forehead. It is the method of choice in eyelid grafting, and it is useful in grafting the upper lip, but in these situations the soft tissues have to be stretched round the mould and held by careful stitching over it.

The wax is sterilised by immersion in 1 : 25 carbolic solution and then washed and heated in water at 140°F. When malleable, sufficient is taken to make an impression of the raw surface, and it is then cobled in position with a jet of ice-cold saline. The mould is removed, dried, and covered with graft, the raw surface outwards. A thick graft tends to curl away from the mould and may have to be stuck to it with mastisol. The mould covered with graft is then applied and stitched carefully into position. One or more stitches may be inserted when the mould is first made (in at one side, over the mould, and then to the other) and the two ends can then immediately be tied over the mould. These stitches hold the mould in position during the insertion of others, which should, is possible, be made to pick up the sheet of graft on either side of the mould, as well as the skin edges. The usual pressure dressing is necessary.

Postoperative Dressings

These dressings will be undertaken to ensure the survival of the largest possible area of the graft. All grafts survive by plasmatic circulation for the first forty-eight hours after application. Thereafter the ingress of capillaries begins and is almost complete in five to ten days, depending upon the thickness of the graft. The maintenance of pressure dressings, however desirable as a protection, is not essential after capillary ingrowth has begun. If the graft has been applied to an uninfected area, the initial dressing may be left in place until complete stability is achieved—i.e., seven to fourteen days. All that will then be needed is the excision of any redundant graft overlapping the normal skin margins and the daily application of a thin layer of vaseline or lanoline until surface desquamation is complete and normal flexibility is re-established.

If, however, the graft has been applied to an infected surface the extent of final survival represents a balance between the initial "take" and the amount of autolysis caused by the infected purulent discharge which soon reaccumulates. It may therefore be desirable to remove the primary dressing after forty-eight hours. This must be done with extreme care to avoid dislodging the grafts. All non-adherent grafts and tags are cut away, and a layer of tulle gras, from which excess vaseline has been removed, is applied. Over this, an appropriate dressing, such as sodium hypochlorite, can be used, but if repeated applications are necessary it is inadvisable to remove the protective tulle gras at each dressing.

A useful alternative, particularly in children, is to leave the graft exposed. Crusting between the grafts may be removed by irrigation, which may, where possible, be carried out in a bath. This regimen is continued until epithelialisation becomes obvious and it may then, if desired, be changed for the closed dressing technique.

When the primary take of any graft is inadequate to ensure early complete epithelialisation, nothing is gained by delaying regrafting for longer than the time necessary to produce a clean recipient area.

St. Thomas's Hospital, London, S.E.1

R. J. V. BATTLE
M.B.E., M.Chir. Camb., F.R.C.S.

The Widdicombe File

VII. IS YOUR TONSILLECTOMY REALLY NECESSARY?

DEAR TOM,

I was only too pleased to see young John for you today. Of course I recognised your wife at once, as I knew her when she was head nurse in "Gabriel" and used to make 'Ovaltine' on the night round.

As I told her, John's cough has nothing whatever to do with his tonsils, and I can't think why anyone should want to remove them. I'm glad you let me see the lad before the operation, as I usually see them only after it has proved a failure. I wonder why the only cases I see preoperatively are doctors' children.

Do you know how most tonsils come to be removed? It sheds a sombre light on something of which we have little reason to be proud.

A child develops some symptom or symptoms that are not readily or permanently cured, and sooner or later somebody—be it doctor, parent, relation, neighbour, friend, or yes, consultant—suspects the tonsils as being the root cause of the trouble. The diversity of these symptoms—coughs, colds, sore throats, failure to gain, pallor, lassitude, vomiting, anorexia, fever, snoring, cervical adenitis, speech defects, and goodness knows what else—should alone suggest that they can't all be caused by an organ of such limited size and structure. In the days when focal sepsis was a fashionable diagnosis, the gall-bladder, appendix, teeth, and tonsils all went as a matter of course; but since the former are now mostly spared, why haven't the tonsils shared in the reprieve? I wish they were farther down where surgeons couldn't get at them easily.

But to return to our unfortunate child. Once his tonsils have become suspect it is thought wise to have a look at them; so with the usual reluctance and the aid of a spoon he is induced to open his mouth, whereupon he demonstrates his disgust, his vigorous retch reflex, and his lacrimal secreting powers. This interlude reveals that his tonsils are very large or very small, craggy, septic, or filthy, and thus confirms a diagnosis that, mentally, has been made beforehand. (We are approaching the day when normal tonsils will be an interesting exhibit at the Royal Society of Medicine.) Our victim is now referred to an E.N.T. department, where from the length of the waiting-lists we must assume that the need for tonsillectomy is frequently confirmed.

The final arbiter in the case is the E.N.T. surgeon, but is this as it should be? The answer is No. Let me tell you why.

* * *

For some time I've been collecting cases attending my clinics complaining of exactly the same symptoms as those for which their tonsils had already been removed. In these cases the diagnosis which led to the operation was wrong: the tonsils were credited with powers they couldn't possibly possess. In eighteen months I found 72 children whose trouble had been attributed to their tonsils, but in fact was due to asthma in 33, common cold in 28, periodic syndrome in 6, idioglossia in 2, and hiatus hernia, latent diabetes, and functional headache due to a broken home in 1 each. These 72 cases came from over 40 E.N.T. departments, and the geography covered Great Britain, Ireland, and more than one overseas country. (There's nothing parochial in the habits of E.N.T. surgeons!) Judging by what the parents said, none of these children had subsequently been followed up; so the surgeons remain ignorant of the real diagnoses and the uselessness of their efforts. Do I hear you say that 72 cases are not very many? Well, my clinics serve a population of only about 100,000; so at a rough estimate 35,000 such cases could have been collected nationally in a similar period, and that is a lot of useless surgery.

Admittedly, there are many cases that appear to benefit by tonsillectomy; but even this must not be accepted without reservations. Firstly a great many of the operations are done on children whose trouble is recurrent colds. The operation age is usually between 6 and 9 years old, the time when so many children tend to be less worried by colds, operation or not. Secondly, the interval between getting on the waiting-list and having the tonsils removed may be several years. The pædiatrician can watch these children during this waiting period, and he will seldom see deterioration in their health. On the contrary there is more often a steady improvement, so that, when their turn comes for admission, the original symptoms have disappeared. But they have the operation just the same, without protest from parent or doctor. How rarely does one find parents who show any annoyance that their child has undergone a useless operation; for they look on tonsillectomy as they look on measles—as just one of those things that all children must suffer at some time. This is not a healthy attitude of mind.

* * *

I think we who see these children should ask ourselves some questions.

For instance, do we really know what ill health can be caused by the tonsils? When they are inflamed, how does one know whether the infection is endogenous or exogenous? Repeated attacks are taken as evidence of endogenous infection, but is this true? There's no difficulty in finding children whose recurrent infections are just as common after operation as before: the only difference is they have tonsillitis when they have tonsils, and pharyngitis, bronchitis, or pneumonia when they haven't. It's just possible that the tonsils are there to prevent their having bronchitis or pneumonia!

Is enlargement of cervical glands an indication for tonsillectomy? In tuberculosis the response to treatment of enlarged glands seems to be the same whether the tonsils have been removed or not, and in non-tuberculous infections tonsillectomy does not affect the course of the adenitis.

Do the size and appearance of the tonsils indicate anything? The cases I have described suggest not, for it must have been on size alone that they were removed. There was nothing else in the children that could possibly have suggested tonsillar disease.

Are the tonsils useless structures? I don't know, but we have heard a great deal about smoking and cancer of the lung. I don't recall that the presence or absence of tonsils was considered, and yet tonsils in adults must be nearly as rare as non-smokers. Could there be any connection between the two? The tonsils and the lungs are both part of the respiratory system.

* * *

Have you ever emerged from the fastness of your own department and attended an E.N.T. clinic? Have you ever seen them examine the heart, chest, abdomen, or anything else outside their own narrow preserves? Have you ever seen one of their patients undressed? Yet here it is they decide the tonsils have so much sin. We should not expect the laryngologists to do a complete examination, but we must do it ourselves. We must try to make an accurate diagnosis before we think of the E.N.T. department, and we must ask ourselves whether the symptoms might not be caused by something else. Even more important, give a little thought to whether the symptoms could, by any stretch of the imagination, be caused by the tonsils at all. How can they be the *fons et origo* of all the things for which they are removed? We must not jump to conclusions,

even though we were brought up in an age of universal tonsillectomy. If all this were done first, very few children would ever get to the E.N.T. surgeons, and we must try to persuade these colleagues of ours to reconsider their views and follow up their cases. Do they enjoy their present position as hewers of flesh—for that is what they are, with only the briefest of interviews before operation, and never seen again. In what other disease are the patients dealt with in batches each day of the week except Sunday? Only the French Revolution and the guillotine. Quite a connection between the two, isn't there?

* * *

It may be there are reasons that justify tonsillectomy, though certainly not on the present scale, and the only way to find out would be a controlled investigation on a large scale. The requisite number of tonsillectomised children are readily available, and the only question is are there enough controls? Do you remember old Angus who used to tell us about an American who had investigated 10,000 tonsillectomised children, and came to the conclusion that in only 4% had no harm been done? I wish I had verified that paper. A lot of beds and nurse-power must be used by tonsillectomy in these islands, and it is questionable whether we can afford it. Suppose that some of these resources were given over to young adults with phthisis, how many lives might be saved? Does anybody suggest that tonsillectomy saves lives? On the contrary, each year a small number of these operations are fatal, and others are followed by bulbar poliomyelitis. One of them, my dear Tom, might have been your son; and I'm glad to be able to remove that risk anyway.

Yours ever,

JAN STEWER.

Medicine and the Law

Claim to Award for Bunyan Bag

ON Jan. 14 the Royal Commission for Awards to Inventors was asked to consider whether a method of medical treatment devised by a dental surgeon, and published by him, could qualify for an award.[1]

The applicant, Mr. John Bunyan, L.D.S., served during the war as a lieut.-commander (D) in the R.N.V.R., and in 1940 was investigating the treatment of gum infections. Because of this, he was invited to help in treating a persistently infected leg wound, which he did successfully by keeping it continuously bathed in fluid within a rubber envelope. From this he developed various types of "Bunyan bag" in which a hand, a limb, or the whole trunk could be enclosed. The method was used by the R.A.F. for treating burns and was communicated to the Royal Society of Medicine in November, 1940. In 1942 Mr. Bunyan was granted leave, without pay, in order to continue his work, and it was thereafter done at considerable financial hardship.

Opposing the application, the Ministry of Supply said that in publishing his method to the world, for the common benefit of mankind, Mr. Bunyan had stripped himself of any standing in regard to a claim: he had made no special or exclusive communication to the Crown, and the enemy could take advantage of the method. It was evident that medical discoveries fell outside the proper ambit of the commission, for medical ethics required that they should be publicly proclaimed. To this Mr. Bunyan's representative replied that "men outside the medical profession cannot be bound by the same ethics": his client was not a doctor but a dentist. Letters from the British Dental Association and the Dental Board made it plain, he said, that there was no ethical objection to a dentist making this claim.

Lord Cohen, the chairman, said that the commission would consider the principles involved. If it found for Mr. Bunyan there would be a further hearing.

1. *Manchester Guardian*, Jan. 15, 1954, p. 9. *Times*, Jan. 15, p. 4.

In England Now

A Running Commentary by Peripatetic Correspondents

I SHALL never get accustomed to night calls. They bring the blackest out of me. To be jolted rudely out of the sweet calm of sleep by the mad jangle of a telephone sends pains of annoyance down the whole of my spine. I grunt into the phone, have a momentary skirmish with my conscience, and say yes. Down goes the phone. My wife says "Poor dear," and immediately falls asleep.

I drag myself from my bed, shaking good sleep off me with deep resentment as I fumble for my clothes. How cold my vest! How like a winding sheet my shirt! How wretched the human race! Why the devil couldn't they call earlier? I wish I were a dustman earning £6 a week—£5 would be enough. All I want is food to give me strength to work, peace and quiet, and, above all and beyond all, undisturbed sleep. By now I have reached the garage. I wonder if I'll have enough petrol? If this is an unnecessary call I will bring the wrath of Heaven upon them. I will, moreover, lace my prescription with valerian. And so I drive on through the thin and foggy night bitter and shrivelled and black-hearted. Oh! Galen, Hippocrates, and the good St. Luke take pity upon us!

By the time I have reached the patient some of my aggression and misery is spent. I make a last final effort to compose myself and send up a swift prayer for patience, sympathy, compassion, and again for patience.

"And the pain is in your back, Mrs. Jones?"

"It's agony, Doctor, I can't move, I can't breathe, I can't bear it any longer!"

"And how long have you had it?"

"Ever since she was born!" And a wrathful hand is pointed at a limp and sagging child of ten.

When I return to my bed my wife says "You are icy, where *have* you been."

* * *

It was one of my rare visits to the theatre, and inevitably a portly gentleman suddenly collapsed. During the commotion that followed I was persuaded to attend him. As I stooped to take his pulse-rate a voice said: "Give him artificial respiration." His wife, overhearing the remark, said to me: "We're not in the 'ealth scheme, we're private with our doctor, we can afford it, give 'im the real thing."

* * *

Twenty years ago I was given a pair of handsome earrings, and after a good deal of advice visited a jeweller to have my ears pierced. He had an extensive West-end practice and numbered duchesses among his clientèle. From a bench littered with the insides of watches and the implements of his trade, he took up a large darning-needle and a cork from what I hoped had been a vintage bottle of Burgundy, and introduced the "sleepers." The immediate result of the operation was successful, in so far as no uncomfortable degree of sepsis occurred, but the long-term result, as may happen in other branches of surgery, was less satisfactory. Despite a carefully arranged starched cap and concealing hair, the glint of the gold "sleepers" caught the eagle eye of the Home Sister, and I was ordered to remove the offending jewellery, so that the artificial orifices filled up.

Last week, encouraged by the discovery of antibiotics, and perhaps by the fashion for dangling earrings, of which I have inherited a collection, I decided on a second operation. This time I approached a small suburban jeweller, whose clients were mainly middle-class housewives. I was asked to make an appointment, preferably after a shampoo. At the appointed time I was ushered into a small office at the back of the shop. Beside the chair on which I sat was a surgical tray, covered by a crisp white towel. The jeweller first touched the centre of each lobe with a point of skin pencil, so that I might approve the siting and symmetry. While he was washing his hands, his assistant removed the towel from the tray, and I noticed a pair of forceps and an introducer lying in a dish of spirit, swabs in a covered jar, and a pair of sleepers also in spirit. The skin was cleansed and I braced myself for the expected stab, but to my surprise the meatus was plugged with cotton-wool

and the lobe sprayed with ethyl-chloride. The sleepers, mounted on the introducer, were put into position painlessly, and I was sent away with some sensible advice on aftercare. The fee was the same as twenty years before.

* * *

In America each State has complete control over medical education and registration within its own borders. This is a big help to medical impostors, who often escape detection for a long time. A useful code of conduct for impostors might be compiled from a study of their colleagues' activities, but the material offered in the medical journals is disappointingly, if understandably, meagre. For instance, the *Journal of the American Medical Association*,[1] in describing an impostor who fled from Olney, Illinois, where "he is alleged to have conducted himself as a physician in such a manner as to gain admiration from his professional associates," describes neither the conduct nor the manner in which admiration was gained. Did he, realising the deficiency of his medical education, read the current journals and perhaps the medical page in *Time*? Was he cautious in offering advice, preferring to allow the patient ample time to describe his signs and symptoms and in the recital achieve his own healing? Can it be doubted that his prescriptions for drugs were, if not few, at least short, so that antagonists were not included? Was he paternal with his patients and slightly reserved toward the doctors? To avoid unpleasantness and the risk of detection, did he promptly answer every call upon him, day and night?

Come to think of it, the code of conduct for medical impostors would also probably be useful, if unofficial, reading for ambitious doctors.

* * *

We have been rather proud of the appointments' system for our clinics. At least it appeared unlikely that one of our clientèle would follow the lead of a patient at a famed London institution who, when he was questioned in court, is said to have given his occupation as "an outpatient at —— Hospital." Yesterday our smugness was shattered by a letter from one of the fertility clinic patients who inscribed the envelope

To Doctor,
Out Patience Department.

* * *

Recently, as a peripatetic in search of relief for a troublesome congenital anomaly, I have gained first-hand information of medicine and surgery in a number of hospitals. There have been many interesting variations in technique in routine nursing care.

In a Scottish teaching hospital, where the medical ward was under the charge of a capable sister of the old school, the care of the patients' backs was a strictly disciplined manœuvre. The erect little figure in blue strode into the middle of the ward and, after marshalling her junior nurses on each side, issued the peremptory command "Backs!" After a pause of "-2-3-" each patient turned smartly on to his left side, after a further pause of "-2-3-" the first nurse had drawn back the first patient's blankets and was vigorously rubbing in a well-defined clockwise rotation his "pressure areas."

In another hospital in the north of England all this was changed. At rather ill-defined intervals a rickety trolley was pushed up to the bed by a nurse, who showed unmistakable evidence of her essential humanity by an errant forelock or a laddered stocking. At the bedside she chatted pleasantly before casually introducing the purpose of her visit—"Can I roob yer bottom for ye, luv?" When I commented on the informality of her terminology she explained that it was useless to use the word "back," as the patient then exposed his scapulæ "which weren't the bit you wanted to roob after all, now were it?"

* * *

My Ego likes dogs.
My Id walks with cats
In thick, haunted fogs,
But my Ego likes dogs.
My Id talks to frogs
And communes with black bats.
Though my Ego likes dogs,
My Id walks with cats.

1. Aug. 1, 1953, p. 1344.

Letters to the Editor

SALARIES OF WHOLE-TIME SPECIALISTS

SIR,—For at least three reasons it is instructive to consider how the Spens recommendations about the remuneration of whole-time specialists have been implemented. Firstly, whole-time service is an integral part of the N.H.S.: one-third of the consultant work is done by whole-time specialists. Secondly, the Guillebaud Committee will be considering what economies would result from the introduction of a whole-time salaried specialist service. Thirdly, one can now assess the consequences, both present and future, of the failure to implement the Spens recommendations fully, and see to what extent the purpose explicit in many of the recommendations has been achieved.

The Spens report, which was accepted in principle by all political parties, sought to make the same standard of treatment available to patients everywhere, irrespective of their means. With this purpose in view, it laid down a basic salary scale for whole-time consultants, ranging from £1500 to £2500 a year in terms of the 1939 value of money. This scale was to be adjusted to the "present-day value of money," the adjustment having regard to the rise in incomes of the medical and other professions since 1939. A "betterment factor" of from 10 to 13% (or from 18 to 21% if one includes the Government's contributions to the pension scheme) was added, making the figures £1700 and £2750 respectively, and they have not been altered since, though the Danckwerts award gave general practitioners a "betterment factor" for 1951 of 100% on their 1939 incomes.

The introduction of a S.H.M.O. grade, not mentioned in the report, with a salary scale of from £1300 to £1750 a year for whole-time work, and proportionate part-time rates, has caused much dissatisfaction because these specialists often have to do the work of consultants and are paid less per session than general practitioners working at certain hospitals.

The Spens recommendations about merit awards for exceptional ability and outstanding work were accepted as they stood, no "betterment factor" being added. The first grade award of £2500 a year goes to 4% of consultants, the second of £1500 to 10%, and the third of £500 to 20%. A part-time consultant's share of an award is proportional to his number of sessions.

As the Spens Committee considered that domiciliary visits imposed an extra burden on specialists, it recommended that: "Specialists who undertake domiciliary visits should receive extra remuneration for this work." Despite this, whole-time specialists are not paid for these visits. In fact, a recent Whitley Council decision authorises regional boards to cut down the travelling allowances paid them for carrying out this work. The Ministry's suggestion that "the duties should be suitably adjusted so that no extra burden is thrown upon the officers by domiciliary work they are called on to do" is quite impracticable. It takes no account of emergency visits, for instance.

Many general practitioners who know about the regulations governing payment for domiciliary visits do not call out whole-time specialists. Thus, the G.P.'s choice of specialist is restricted, and patients are denied the advantage of whole-time specialists' wide experience in certain fields—tuberculosis, for example.

The Spens Committee assumed that whole-time specialists would be paid "any sums which represent expenses reasonably incurred in the course of their work" in addition to the salaries recommended, and that these allowances would not be liable to income-tax, and stated:

> "The Evidence Committee has brought to our notice a number of items of expense which must be met if the specialist is to perform his duties efficiently. These include car expenses; expenses of travel apart from the use of a car; the cost of renewal of instruments and other equipment; the cost of books and journals, preparation of scientific papers, and subscriptions to professional

societies; printing, stationery, postage and telephone costs; expenses of attendance at national and international professional meetings; and the expenses of visiting hospitals and clinics at home and abroad, and entertaining visiting colleagues."

Few of these expense allowances have been granted; none are adequately met.

A whole-time specialist on call for emergencies and domiciliary visits must run a car, yet he is paid for only a fraction of the mileage he covers in the board's service; he is not paid for "routine" journeys to his main hospital even when he must travel by car because he is on call for emergency domiciliary visits or has to undertake other journeys on official business. Management committees spend limited sums on hospital libraries, and so provide some of the books and journals required. Although the specialist must have a telephone because of his work, he is paid no portion of the rental, only the cost of outgoing professional calls. In fact, many whole-time specialists, formerly employed by local authorities, and now doing the same work under the N.H.S., have had their car and telephone expenses drastically cut. Study leave in theory, but not in practice, covers the cost of attending professional meetings. Nothing has been done about any of the other expenses.

Despite the Spens recommendations and the recent legal dictum that "it was the anæsthetist's duty to follow up the writings on a subject which concerned him closely" the whole-time consultant is allowed no income-tax rebate on his expenses, apart from his subscription to a medical defence society.

Comparing the terms and conditions of whole-time and part-time service, we find that the difference in the maximum basic salary of a whole-time consultant (£2750) and a part-time doing 9 sessions a week (9½/11ths of £2750 = £2375) is £375. To compensate for his lower salary the part-time consultant has the following privileges:

(1) He can earn up to £840 a year for domiciliary visiting.
(2) As he can have his pension calculated on the same basis as a whole-time man, his higher salary of up to £3215 entitles him to a higher pension for equal years of service.
(3) He is paid a travelling allowance of up to £190 a year for routine visits to his main hospital.
(4) He is allowed up to 1 hour's travelling time out of each 3½-hour session.
(5) "In special circumstances" a board may "offer a higher rate of part-time remuneration than that normally applicable." (*Terms and Conditions of Service*, para. 5*c*.)
(6) He is allowed private practice and can thus secure income-tax relief on many of his expenses. Recently the scale of fees he can charge private patients under the scheme has been raised.

The following figures show how the Spens recommendations have been implemented. On Feb. 6, 1953, Mr. Butler stated that the pound was then worth 44% of its 1938 value; so, assuming the specialist is married and has two young children, we get these figures:

Gross salary today		*Net income (after deduction of tax)*	*Equivalent net income in 1938*	*Gross income in 1938*
Whole-time S.H.M.O.	Minimum £1300	£1094	£481	£489
	Maximum £1750	£1386	£610	£640
Whole-time consultant	Minimum £1700	£1354	£596	£623
	Maximum £2750	£1882	£829	£914

Merit awards do not ease the burden greatly. They are a minority distinction and S.H.M.O.s are not eligible for them.

Before the late war, the Middlesex County Council found it necessary to pay much higher salaries than those given in the last column to attract able men into whole-time service. Before the war, too, according to the Spens Committee on General Practice, low incomes and financial worries prejudiced the efficiency of many G.P.s. Today it is mainly whole-time S.H.M.O.s who have grave financial worries. Today young doctors have better prospects as G.P.s than as whole-time specialists, and this is one reason for the shortage of junior medical staff in many peripheral hospitals. More and more regional boards are finding it necessary to offer specialists part-time contracts even at a time when there are so many surplus senior registrars, so what of the future?

When the Spens report was accepted in principle, specialists had the right to expect that at least its essential features would be preserved, and it is pure chicanery for the Ministry of Health to claim, for instance, that the same regulations about travelling allowances as apply "to hospital clerks and porters" should apply to whole-time specialists. If the Ministry persists in this attitude, whole-time specialists will be driven to substitute trade-union principles for their vocational code of ethics and to demand the same right of appeal to arbitration under the Industrial Disputes Order (1951) as hospital porters enjoy. Then something of incalculable value in public life will be lost.

If whole-time service is to be retained—and it must be if the distribution of specialist skill is to be extended evenly to patients in rural and industrial areas—then its rewards must approximate to those of part-time service. The first step should be to grant whole-time specialists reasonable tax-free allowances and payment for domiciliary visits, and the second to give them, like G.P.s, a "betterment factor" of 100%.

Never was the need for unity amongst specialists greater than it is today. Only when the gap between the rewards for whole-time and part-time service has been substantially narrowed, will the Guillebaud Committee have no inducement to recommend the introduction of a whole-time salaried specialist service on the grounds of economy.

Orpington, Kent. LEO GILCHRIST.

POSTTRAUMATIC SYNDROME

SIR,—Your annotation of Jan. 2 is rounded by a gentle bland complacency: "the posttraumatic syndrome . . . has become less common"; it merely "indicates inadequate supervision and reablement"; and anyway the symptoms "can be cured in many different ways." Of course, "there are many doubts about the mechanism of some of the postconcussional symptoms," but any attempt to dispel them by an "operation" implies a lack of confidence in those who are really "familiar" with the subject.

Lest anyone should think that I advocate indiscriminate and unnecessary operations, I should like to point out just what the operation is and its purpose. The operation, performed under local anæsthesia, consists in making bilateral burr-holes, each 1 cm. in diameter, and opening the dura mater. The purpose of the operation is to exclude the presence of blood or fluid in the subdural space and to note the state of the brain—in short, to seek any pathological condition which can be found through such an opening. With such an opening, we know something: without such an opening, we know nothing of the pathological conditions inside the skull of the patient.

Your suggestion that the patient can be treated just as well without such knowledge would not have found favour with the great clinicians. William Osler, for instance, wrote: "As is our pathology so is our practice." Where we have no pathology our practice is reduced to "the assessment of separate remedies." Diagnostic burr-holes are made only when the patient's condition is static; if he is "getting on" at all, they are not necessary.

The statement that "this latest account contains little fresh evidence" ignores the recent developments in pneumo-encephalography.

It is stated in your annotation that one of my findings at operation is "at variance with the experience of other

surgeons." This statement implies that other surgeons have made routine diagnostic burr-holes in cases of the posttraumatic syndrome. Until their findings have been made known, there cannot be any basis for comparison. I should be grateful for a reference to a paper on this subject by any of those surgeons upon whom the mantle (and even a tenth of the spirit) of Harvey has fallen. "He who truly desires to be informed of the question in hand, and whether the facts alleged be sensible, visible or not, must be held bound, either to look for himself, or to take on trust the conclusions to which they have come who have looked; and indeed there is no higher method of attaining to assurance and certainty." [1]

Dublin. ADAMS A. MCCONNELL.

DIRECT INGUINAL HERNIA

SIR,—Indirect inguinal hernia is a relatively common condition in both sexes. Direct inguinal hernia is also frequently found in men, but is very rare in women: I have never seen one in a female. There must be some reason for this disparity. Can any anatomist or surgeon supply it?

Dundee. F. R. BROWN.

OBSERVER ERROR

SIR,—Your leading article of Jan. 9 is most welcome, for this is a subject whose importance should be more widely recognised, but there are a few minor corrections I should like to make, as well as some further comments.

Firstly, why do you suggest that the consistency of radiologists would be better under normal working conditions than during a test? This is, a priori, unlikely since in most trials the decisions required are simplified and the observers are likely to be trying their hardest. In fact, Garland (personal communication) has investigated the intra-observer error under routine conditions and found it as great as under test conditions.

Secondly, you misquote my report [2] on observer error in eliciting physical signs of emphysema by saying that the eight observers "were not unanimous in a single instance." In fact, all eight observers agreed in 34 out of 220 instances (15%). It would indeed be astonishing if there were never unanimity. Disagreement chiefly arises in borderline cases, but every study of observer error shows that this borderline is much wider than is generally believed. The more obscure the sign is, the wider must be the borderline, till in the more difficult and refined signs it extends over the whole range of abnormality, and all possibility of agreement between observers disappears.

Thirdly, I cannot agree that observer error is "of very small significance in general medicine." You appear to base this optimistic statement on the fact that "action seldom follows on the result of a single observation" and that "discussion, consultation, and re-examination . . . greatly reduce the hazard." It is true that discussion, consultation, and re-examination will reduce the influence of observer error, but do they always precede action? An eminent clinician recently wrote: "we must remember that normal figures for laboratory tests may vary. This is a little bewildering for the physician accustomed to the accuracy of his clinical observations." While clinicians continue to believe that their observations are accurate, they will remain unaware of the need for consultation and re-examination to reduce their errors. I have seen action based, for instance, upon a single barium meal, electrocardiogram, or bronchoscopy. Although the errors of these investigations have not yet been submitted to formal analysis, there is no reason to expect them to be less than those of chest radiology. Not only should clinicians recognise their own errors, they should admit them in their teaching. Students should first be taught obvious and useful signs and not be led to waste their time upon refinements which must be subject to gross errors. The disagreements demonstrated in respect of simple hyperresonance [3] were such as to suggest that, for instance, a refinement such as skodaic resonance should be discarded. I doubt if you would ever get four independent cardiologists to agree upon the presence and timing of four heart-sounds! Such refinements of physical examination should be subjected to the test of observer error before they are published in our textbooks and journals and taught to students.

Lastly, your warning about the results of therapeutic trials or prevalence surveys which depend upon interpretation of radiographs should be extended to all investigations in which any subjective method is used. In such investigations, it is most unusual to find any reference to the possible influence of observer error, although there are occasional admirable exceptions to this rule. [3 4]

Until clinicians freely recognise the bluntness of the instruments they use so assiduously, they will burden their students unnecessarily, deceive themselves, waste a lot of time, and reach false conclusions from which their patients may suffer unnecessarily.

Postgraduate Medical School of London, London, W.12. C. M. FLETCHER.

THE MALADJUSTED SCHOOL

SIR,—Dr. Burbury's article (Dec. 12) on schools for maladjusted children is timely, and I agree with her critical remarks and her proposals—with one exception. Like the Ministry of Education, Dr. Burbury feels that the advantages of coeducation are outweighed by its dangers "in view of the acute sexual problems which are commonly a part of emotional instability and maladjustment." I feel that it is a task of these schools to help a child to overcome all his major problems, sexual ones included; and with some children, if they do not go to coeducational schools, the working through of sexual problems is postponed. Difficulties may then appear in later life and in an environment which cannot be expected to tolerate them. A large number of headmasters of schools for maladjusted children are unwilling to deal with coeducational problems, and they should not be pressed to do so. On the other hand, I believe we should give every support to those principals who, one feels after personal contact, are able and suited to have children in this particular kind of environment.

To amplify my point, I should like to mention a case which I sent recently to a coeducational school for maladjusted children. He is a seriously disturbed, illegitimate adolescent, an only child, in danger of becoming homosexual, largely because he had no father with whom to identify. It was most important for him to live in a community not only with two parental figures but also with brother and sister substitutes. To make him aware of the opposite sex and to help him in dealing with the conflicts aroused is an integral part of his treatment.

I appreciate that the problem of coeducation is a serious one and society in general is very sensitive to the issues involved. Nevertheless, we cannot escape from dealing with this problem for fear of public censure. Provided therefore, there is regular inspection combined with other safeguards—e.g., competent staff—I believe there is a need for the encouragement of a small number of schools for maladjusted children admitting both sexes.

Manchester and Salford Child Guidance Clinics, Salford. ALFRED MODEL.

1. Eminent Doctors. Edited by G. T. Bettany. London, 1885; vol. I, p. 33.
2. Fletcher, C. M. *Proc. R. Soc. Med.* 1952, **45**, 576.
3. Kellgren, J. H., Lawrence, J. S. *Brit. J. industr. Med.* 1952, **9**, 197.
4. Miall, W. E., Caplan, A., Cochrane, A. L., Kilpatrick, G. S., Oldham, P. *Brit. med. J.* 1953, **ii**, 1231.

SAFER EMERGENCY BLOOD-TRANSFUSION

SIR,—In his article in your issue of Jan. 2, Dr. Zeitlin recommends that in acute emergencies, when trained personnel are not available to group and cross-match blood, the prospective recipients should be grouped only with an anti-A serum (dried on a glass slide). With anti-A serum, bloods of groups O and B would react negatively, while group A and AB bloods would react positively. Dr. Zeitlin then recommends that those patients whose bloods contain the A antigen shall receive A Rh-negative blood and those whose bloods lack the A antigen shall receive O Rh-negative blood, the transfusions in either case being of unmatched blood. These recommendations require comment.

The great majority of deaths due to incompatible transfusion involve ABO incompatibility. It is clearly axiomatic, therefore, that blood should, so far as possible, never be transfused unless shown by a reliable technique to be compatible. Very seldom is the need for transfusion so urgent that it cannot be delayed an hour or more so that grouping and cross-matching tests can be done. In those in whom the need for transfusion is urgent and immediate, because of oligæmia, plasma can and should be given and, in the interim, grouping and compatibility tests can be completed so that homologous blood shown to be compatible may be transfused. Some may be averse to using plasma on the score of homologous-serum jaundice. However, large-pool plasma, after which the incidence of hepatitis and jaundice was as much as 10%, is no longer issued to hospitals. Nowadays only small-pool plasma is issued and this seldom causes homologous-serum jaundice, the incidence being almost the same as when blood alone has been given. A plasma substitute can be used as an alternative to plasma, but it should be borne in mind that all plasma substitutes thus far devised have been shown to have their limitations.

Any short-cut method of the type proposed by Dr. Zeitlin, however safe in skilled hands, will sooner or later break down in the hands of the inexperienced in an emergency, so that group-A blood may be given to an O or B recipient. The practices recommended by Dr. Zeitlin may indeed bcome necessary in large-scale transfusion work—e.g., when dealing with large numbers of casualties following an atom-bomb explosion. But, in our view, the method cannot be recommended for use in peace-time, particularly by obstetrical flying-squads. When a patient is already anæmic from blood-loss, and large volumes must be transfused before compatibility tests can be done, blood of group O should be given. However, as Dr. Zeitlin rightly points out, it should be borne in mind that transfusion of group-O blood to recipients not of group O, especially if they are anæmic, is not always safe since destruction of the recipient's red cells may result. In such cases, therefore, there is much to be said for judicious use of plasma, blood being alternated with plasma, if need be, until matched blood of the patient's own group is obtained.

Rh-negative blood is still far too often given unjustifiably to patients who are not Rh-negative, so creating shortages of this very valuable commodity. We would point out that nowadays most mothers are Rh-typed in pregnancy, so that their Rh types are known in advance of confinement. Again, it is usual to group in advance patients who are to have a major operation. Consequently Rh-negative blood should be reserved for those known to be Rh-negative and should not be transfused in emergencies to recipients of unknown Rh groups, since, if this is done, the chances are high (about 5 or 6 to 1) in any particular case that the recipient will be Rh-positive, and if so, will needlessly receive Rh-negative blood. Plasma should be transfused to the patient whose Rh group is not known until this has been determined.

The solution to the problem of "safer transfusion" is not, we think, on the lines suggested by Dr. Zeitlin, but, rather, lies in the provision of 24-hour grouping and cross-matching services in all blood-banks. Banks not covered by such a service should not be maintained. The matter, therefore, is one of administration by regional hospital boards, who should pursue strenuously a policy of providing 24-hour grouping and matching services in all blood-banks. Resorting to short-cuts in technique and the omission of compatibility tests in peace-time conditions is not sound practice, for it is only too likely, sooner or later, to result in mishaps. An adequate 24-hour grouping and cross-matching service should imply the use of reliable modern techniques by night as well as by day. At present, during normal working-hours, reliable techniques—e.g., albumin and Coombs techniques—are generally used, whereas at night, only too often, unreliable techniques, such as using red cells suspended in saline only, are practised so that incompatibility due to incomplete antibodies may be missed. Often, too, at night, no attempt is made to ascertain the recipient's Rh group. We would add that, where a resident pathologist or a rota of trained technicians cannot be provided, suitable resident housemen should be trained in the techniques of grouping and matching blood.

Welsh Region. R. DRUMMOND
South West Region. GEOFFREY H. TOVEY.
National Blood Transfusion Service.

GRAVITATIONAL ULCER

SIR,—Mr. Wright, in his article of Dec. 19, perpetuates several errors concerning the physiology of the circulation. These errors are by now almost "official" and conduce to the misunderstanding and mismanagement of circulatory deficiencies.

Though Harvey described the circulation of the blood he did not describe *how* the circulation was effected; according to his theory we ought to die soon after going to sleep. In a book which has just appeared,[1] I have described how in my view the circulation is effected, and how from that knowledge many circulatory diseases, at present miscalled heart-diseases, can be understood and treated successfully.

Mr. Wright says:

"The factors which influence the venous return from the lower limb are as follows: (1) Vis a tergo—the arterial inflow . . . (5) Heart action producing a suction effect in the cavity veins."

Now, there is no vis a tergo. The pressure in the capillaries is almost nil: puncture them with a needle, and this "vis" will not force blood out; if you want to examine the blood, you must apply "vis" with your fingers. Secondly, the heart cannot apply suction; for such an action, auricular diastole, as well as systole, would have to be forcibly distensile and contractile. The heart is a positive pump and can only drive blood forward to the periphery.

Turning to the mechanism of gravitational ulcer, Mr. Wright includes in his list of factors: "(2) The pump action of the limb musculature, which, to be most effective, demands (3) soft compressible veins, and (4) competent vein valves." Here he is on real, not mythical, ground. People who have gravitational ulcer are in my experience mainly sluggish, good-natured, and fat; they usually stand a lot, and take little, if any, exercise (that is, at the start—they may alter later on). In these people, the milking action in the leg veins is defective; and the fat in the abdomen proportionately impairs the "systole" of respiration, and interferes with the piston-like action of the diaphragm coupled with the normal contraction of the abdominal muscles in inspiration. (In most adults this normal synergy is not often found.) The result is serious stasis and distension of the abdominal veins, which

1. Todd, A. T. Good Living: a Philosophy of Health. Bristol, 1954.

adds to the embarrassment of the return from the leg. Thus, venous pressure is increased and is greatest just proximal to the ankle. This increased pressure causes distension, and although competent valves may be present, they are soon rendered incompetent by stretching of the valve rings: the results—not the causes—are varicosities, thromboses in the stagnant sinus, and recurrent phlebitis.

Thus, when the patient is lying down in bed, even a poor respiratory "systole" is effective because gravity is no longer a handicap, and the leg veins can empty; œdema, not fibrosis, is lessened and healing starts at once. If the alleged causes—varices, fibrosis, and the results of phlebitis—were really operative, it would be hard to explain the rapid benefit of recumbency.

The treatment of gravitational ulcer is therefore mainly preventive: the veins are mostly irretrievably damaged before the varices appear. Radical medical treatment is possible in the early stages; elastic stockings, put on when the leg veins are empty—not, as is usual, when full (for then they block still more the trapped varicose sinus)—really do help to counter gravity. The stocking is put on before rising from bed, and the leg is held up in the air for a time before the stocking is pulled on. The use of stockings, combined with increased physical activity, will augment the milking action of the muscles and may even permit distended veins to shrink and valves to operate again, if it is not too late.

Though I agree that, in certain cases, various surgical procedures may improve on the untreated condition, I do not believe that surgery can do more than provide incomplete and purely symptomatic relief.

Bristol. A. T. TODD.

NURSING OF ADOLESCENTS IN ADULT WARDS

SIR,—It may be of interest to Mr. Stuart-Clark, whose article you published on Dec. 26, and to your readers, to know that the Ulster Hospital for Children and Women, Belfast, which was destroyed almost completely by Hitler in his third attempt on it in 1941, has now, after long delays, acquired a new and beautiful site, and architectural plans for the new building are being prepared. This will provide, in the first instance, 120 beds for children, together with an obstetric and gynæcological block. In this new building, the committee of management and the hospital staff are agreed that there must be provided a special unit for the inpatient treatment of adolescent patients. In future stages, the hospital will become a general hospital containing approximately 500 beds.

I strongly support Mr. Stuart-Clark's view which favours the segregation of these young people from adults, for the reasons which he has so clearly given.

Belfast. ROBERT MARSHALL.

PYROTHERAPY IN NEPHROSIS

SIR,—It would be difficult to think of a form of treatment for nephrosis which had not already been tried, and Dr. Mendel and Dr. McGill (Jan. 16) may be interested to know that there is an earlier reference [1] to the use of intravenous T.A.B. vaccine as a form of pyrotherapy in nephrosis.

In the present state of our knowledge of the ætiology of nephrosis, all treatments are necessarily empirical, so it would be a great help to our patients if we knew whether any one of the available types of treatment—corticotrophin (A.C.T.H.), cortisone, pyrotherapy, plasma-expanders (plasma, albumin, or dextran)—is more effective than another. One would like to know not only which is the most likely to provoke a remission of sorts, but also which is the most likely to provoke a remission both complete (clinically and chemically) and long-lasting. For instance, it would be useful if the results of a particular treatment were given in terms of "two-year cures," since it seems that a complete remission of this duration is usually permanent.

To this end Mr. P. G. Shute, of the malaria laboratory, Horton Hospital, and I are attempting to follow-up the late as well as the immediate results of malaria therapy, with which some 80 cases of nephrosis have been treated since 1952 in this country. We hope, in due course, to be able to provide some assessment of the worth of this treatment, in the expectation that by that time comparable figures may be available for, say, two-year cures achieved by other methods.

Cambridge. DOUGLAS GAIRDNER.

1. Clément, R. *Pr. méd.* 1938, **46**, 971.

ACUTE HEPATIC NECROSIS

SIR,—My letter of Jan. 2 was in no way meant to be provocative. I am somewhat perturbed, therefore, that Dr. Woodrow and his colleagues (Jan. 16) have gained the impression that I doubted their clinical acumen. By "so-called acute hepatic necrosis," I only meant to convey in a general way that this diagnosis is an example of loose terminology unless one is prepared to define its pathological type more closely—e.g., acute massive necrosis, acute centrilobular necrosis, and the like. Since biopsy can be dangerous, this is often extremely difficult, if not impossible, and when this is the case, for want of a better term, I prefer the phrase "severe acute liver disease." I know this may sound rather cumbersome, but it does not lay claim to more than it says.

I quite agree that any possible addition to our therapeutic armamentarium for the treatment of coma in severe acute liver disease is worth further investigation. That I have been doing this with glutamic acid was well borne out in my previous letter, but unfortunately I have not met with success.

In the light of what is becoming a fairly extensive experience, I cannot agree that prognosis "remains extremely poor." Acute liver disease with hepatic coma still carries an appreciable mortality, but the outlook, has, I feel, been considerably improved.

Department of Pathology,
Royal Victoria Infirmary,
Newcastle upon Tyne. A. L. LATNER.

VISITING CHILDREN IN HOSPITAL

SIR,—It is good to learn that you will shortly publish an article on the Pickerills' hospital, for their methods are of great interest to all who care for infants and children in hospital. They suggest, in their letter of Jan. 9, that the introduction of secondary infections by visitors is an important danger; but this has already been disproved by the careful work reported by Watkins and Lewis-Faning,[1] who showed that daily visiting did not seem to increase the incidence of infections acquired after admission. Sixty or seventy years ago, it was not uncommon for 100% of healthy infants admitted to institutions to die before reaching the age of one year, and the newly acquired knowledge of infections led those responsible to ban visiting in an effort to cope with this terrible problem. Of recent years, however, work by Spence,[2] Spitz,[3] and Bakwin [4] has pointed strongly to the conclusion that the high mortality was caused by the fact that infants separated from their mothers have a poor resistance to infection.

Virulent organisms are more likely to be carried by the doctor or nurse from another ill child in the hospital than brought in from outside by visitors. As I see it, the Pickerills' management of healthy infants admitted

1. Watkins, A. G., Lewis-Faning, E. *Brit. med. J.* 1949, ii, 616.
2. Spence, J. C. *Ibid*, 1947, i, 125.
3. Spitz, R. *Psychoanal. Study Child*, 1945, **1**, 53; *Ibid*, 1946, **2**, 313.
4. Bakwin, H. *Amer. J. Dis. Child.* 1942, **63**, 30; *J. Pediat.* 1949, **35**, 512.

for plastic surgery has three special features, each of which might be responsible for the absence of morbidity: (*a*) the babies remain under the care of their mothers; (*b*) mother and baby live together in separate little "chalets" *à la* holiday camp; and (*c*) there is no visiting. (*b*) and (*c*) may well contribute to the total absence of morbidity, but the papers I have referred to strongly suggest that the continuous presence of the mothers is the chief factor.

In 1951, 82 infants died in England and Wales from hypertrophic pyloric stenosis, most of them probably from infections caught in hospital. The Pickerills' admirable record shows we have something to learn from their methods.

Guy's Hospital, London, S.E.1. RONALD MAC KEITH.

CERTIFICATES

SIR,—In his letter last week, Mr. Van den Bergh has raised an important point of principle which has long needed consideration. The question of certification has two aspects: the medical and the industrial.

The medical aspect is simple. As he says, a doctor is unable truthfully to certify that a patient was unfit for work on a particular date unless he examined him on that date. The majority of doctors, I believe, adhere to this principle, and it is compassion for a worker about to lose his pay that impels them to issue a variety of certificates which, though valueless, seem none the less to satisfy many managements. My own favourite is an ordinary "final" certificate stating that "Mr. X is now able to resume work." Where this fails to get by, the form ED 652, devised by the B.M.A. and the Ministry of Labour during the War, nearly always works. This states: "I have examined Mr. X on the undermentioned date. He informs me that from date A to date B he has been suffering from C. I consider him fit for work." I have thought that it must be the somewhat impressive heading of this document—*Ministry of Labour and National Service*—that stimulates managements to make up a man's pay on such worthless evidence. Doubtless, since doctors are only human, there are some who for the sake of peace and quiet will issue a retrospective certificate on demand; but surely such certificates, as Mr. Van den Bergh suggests, are not valid and should be so treated by managers.

The industrial aspect is, however, the real core of this problem. Managements vary greatly in their certification requirements. One with which I have regular dealings requires a certificate if a man takes two hours off to visit the surgery: others, perhaps less addicted to the shifting of responsibility, allow three days' absence without certificate. These latter would seem to trust their employees: the former appear for ever suspicious of theirs—"if Bill Jones says he's been ill he's got to prove it before we'll believe him." It seems to me that it is this suspicious attitude which has precipitated the problem outlined by Mr. Van den Bergh.

If managements would accept their responsibility to discriminate between an honest and reliable servant and an amoral scrimshanker, they would not need to "pass the buck" to the doctor. May I suggest a simple and, I think, workable answer to this problem? Managements should:

(1) As a privilege, allow three days' absence for illness without certificate and without loss of pay.

(2) Apply this three days' leave to all employees until suspicions are aroused that a particular employee is abusing his privilege.

(3) Withdraw the privilege when they consider such to be the case and require the suspected employee to produce a certificate when he claims sick-leave.

This arrangement would, I suggest, produce the following results:

(1) It would return the responsibility for the recognition of the honest worker where it belongs—to the management. It is the evasion of this responsibility that has largely caused the present artificial set-up.

(2) It would soon pay dividends both in better employer–employee relations and in hard cash, since the only known treatment for the common cold is the confinement of its owner to a warm room. If a man were free to apply this treatment, he would avoid both his own attack of bronchitis and the infection of his fellow-workers with his cold: it is the "doctor's certificate" threat which sends him to work since, at least in this locality, the great majority of patients feel it unreasonable to summon a doctor to the house for a certificate for a cold. (Many, alas, rather than do this, come to the surgery and there infect others.)

(3) It might even hasten the official recognition of the fact, well known to most general practitioners, that respiratory illness (which is the major cause of winter absence from work) is to a great extent infectious and largely controllable by early isolation of the victim.

Whether my views are correct is unimportant if their expression stimulates inquiry into the two matters raised—namely, the employers' requirements for certificates and the prevention of respiratory illness.

Dartford, Kent G. F. TRIPP.

SWELLING OF THE EYELIDS

SIR,—In discussing swelling of the eyelids, Dr. Keidan (Jan. 9) gives a comprehensive list of causes, which includes orbital infections. The infection, however, may be far removed from the orbit as in a child patient of mine with considerable swelling of the eyelids of over a week's duration. The general health was good, and not until the sister noticed a stain on the pillow did we discover a septic abrasion on the occiput. Absorption from this into the lymphatic network of the scalp was evidently responsible, and the swelling gradually disappeared when the abrasion healed.

Enfield. C. ALLAN BIRCH.

DOCTORS AND THE PRESS

SIR,—May I be allowed to comment on some aspects of the public relations of medicine? I wish to do so because, as science consultant for a leading mass-circulation illustrated weekly, I was involved in the recent story of the Siamese twins.

I was horrified to find that for many days a running battle took place between some representatives of Fleet Street and those at the Hammersmith Hospital concerned with the operation. Like most battles, it was stupid and unnecessary. Why did it occur? Because the press was demanding the impossible, and because the surgery unit involved was refusing the possible—and neither understood that this was so.

A national newspaper does not like a general handout. It wants a story that is different. Surgeons, obviously, are not experts in handling the press. Their professional ethic demands that they remain anonymous and distant from anything that may be regarded as publicity.

But who is to handle public relations is a technical point. I am more concerned that too many doctors do not yet believe that there should be more public reporting of medical news. Prof. Russell S. Boles, of the Graduate School of Medicine, University of Pennsylvania, has said: "Timely and well-balanced reporting of medical news serves many useful purposes. It provides people with a sense of security concerning their health, it promotes good public relations, it develops support for hospitals and institutions engaged in teaching and research, and it keeps the people abreast of the progress being made in medicine and surgery."

The main problem is not *how* medical news shall be reported, but *what* should be reported. Those writers who are members of the Association of British Science Writers have a sufficiently developed sense of responsibility to the public and to the medical profession not to offend. Would it not be useful for medical bodies to have

occasional meetings with the press, not necessarily as news conferences but to provide them with background information to understand future developments ?

No health programme can succeed without the understanding support of the public. Cordial relations between doctors and the press are essential in securing this support.

London, W.1. MAURICE GOLDSMITH.

"MOLLUSCUM PSEUDOCARCINOMATOSUM"

SIR,—I must thank Dr. Beare and your annotator (Jan. 9) and Dr. Gold (Jan. 16) for their answers to my letter. I did not wish to decry the great value of recognising molluscum pseudocarcinomatosum nor to suggest that it should be treated radically when there is no doubt about the diagnosis. But I do still suggest, firstly, that it will often be wrong to wait and see whether a *doubtful* lesion turns out to be benign or malignant and not to treat it radically at once ; and, secondly, that histological examination is not invariably as easy or reliable as we should like it to be.

May I quote two examples, seen in 1953, of a similar lesion—squamous carcinoma of the lower lip ? Both were early cases ; both had two successive apparently adequate biopsies reported as benign and were not therefore treated radically immediately. Within three months of first being seen, one had spread to submandibular lymph-glands and the other had excavated the corner of the mouth. Biopsies of both were now typical of squamous carcinoma.

Radiotherapy need not be a "sledgehammer," and early cases of squamous carcinoma of the skin, properly treated, have an extremely good prognosis, better than many skin conditions not classified as "malignant."

University College Hospital,
London, W.C.1. K. E. HALNAN.

SHOE DESIGN AND THE GREAT TOE

SIR,—There is one defect in many shoes that has not been mentioned by your correspondents—namely, excessive rigidity in that part of the sole underlying the metatarsal heads.

When walking barefoot, dorsiflexion occurs passively at the metatarso-phalangeal joints (until the toes are actively plantar-flexed in the final "take-off" phase). Much of the thrust along the metatarsal shafts is, therefore, transmitted to the ground via the metatarsal heads.

By contrast, in a foot that is splinted by a shoe with a rigid sole, there can be relatively little dorsiflexion of the toes, and the metatarsals and phalanges are maintained more or less in the same line. As a result, the forces passing down the shafts of the metatarsals are directed along the toes, and the pressure borne by the metatarsal heads is correspondingly reduced.

Any tendency towards hallux valgus will thus be perpetuated by wearing a shoe with an unyielding sole. The weight of the body will "concertina" the big toe laterally at an already angulated first metatarso-phalangeal joint, especially if the toes are driven into the restricted end of the shoe, in the way discussed by Dr. Haines and Mr. McDougall (Jan. 16).

Department of Anatomy,
St. Thomas's Hospital
Medical School,
London, S.E.1. C. H. BARNETT.

SIR,—Dr. Haines and Mr. McDougall suggest that shoemakers are not altogether to blame for failing to produce shoes with straight inner borders, yet they give further evidence that faulty design is the cause of hallux valgus.

It is significant that the reasons given in their letter are not those offered by the trade for tapering the toe. The latest trade textbook [1] states that the tapering is designed to accommodate the hallux in the position assumed on weight-bearing with the heel raised. This is described as follows :

"The changes in shape that occur during these movements [walking] of the foot are manifold. As the heel of the foot is raised the big toe turns outwards—i.e., away from the midline of the body but towards the centre of the foot. The amount of movement is worked out by Mr. Golding to be $^1/_8$ inch for every $^1/_2$-inch elevation. Mr. Bradley, of the Boot Trade Research Association, gives the amount as 1 degree for each $^1/_2$-inch elevation."

I can only conclude from these trade reports that the feet examined were already deformed by hallux valgus. In normal or nearly normal feet weight-bearing is accompanied by an inward thrust.[2]

Everything that has been published on this subject emphasises the need for further investigation. Successive Ministers of Health have denied this and refused to accept responsibility for preventing acquired foot deformity. They persist in blaming the parent for failing to select correctly designed footwear and refuse to admit that footwear is wrongly designed. They all appear to me to be sadly misinformed and inclined to favour the manufacturers' point of view. The Minister of Health *is* responsible for initiating any measures needed to ensure freedom from acquired deformity, including the gathering of the necessary knowledge.

London, S.E.15. CHARLES A. PRATT.

LACTATION AND FLUID INTAKE

SIR,—The article by Professor Illingworth and Dr. Kilpatrick (Dec. 5) and the subsequent correspondence (Jan. 9) illustrate the danger of accepting uncritically the conclusions drawn from "controlled" and statistically analysed therapeutic trials. The present professorial generation has quite rightly revolted against traditional methods of treatment and against uncontrolled observation ; and at times this revolt has been conducted with the fervour of a witch-hunt. The time has come to pause and wonder if the witch-hunters are not becoming as unreasonable as the witches they hunt. Is the revolution in danger of building up a tradition as erroneous as the ones it seeks to destroy ? Are we in danger of accepting without question as authoritative the conclusions of every article containing such phrases as "a controlled investigation was made."

Traditions are often founded on the accumulated experience of mankind over the centuries and so may be regarded as the conclusions drawn from a vast statistical experiment and should not be lightly thrown aside by an experiment done on a small population.

Professor Illingworth writes : "the point of the paper lies . . . in the unequivocal finding that the forcing of fluids . . . was useless." A statistical analysis gives an answer in terms of probability and is never unequivocal. He also says : "This investigation showed that not only does the forcing of fluids have no beneficial effect in increasing milk production. . . ." The truth of the matter is, of course, that this experiment did not demonstrate a beneficial effect ; but it is quite illogical to assume that it can never have a beneficial effect ; and it would be wrong in cases of poor milk production to withhold a trial of forced fluids as a result of this experiment. An insensitive experiment which is inadequately controlled will always tend to confirm that the therapy under trial is useless ; but it does not and can never prove unequivocally that it is useless. The experiment will only have a chance of showing that the therapy is probably some good if it is sufficiently large, sufficiently sensitive, and properly controlled. If we are to bring our critical faculties to bear on reports of "controlled investigations," it is important that we should examine them from the

1. Boot and Shoe Production. Edited by J. Korn. London, 1953.

2. Pratt, C. A. *Lancet*, 1953, i, 746.

point of view of these three criteria. It is the job of the statistician to determine whether the experimental material is sufficiently large; but the statistically untrained should bear in mind that a small series should not be lightly accepted as a refutation of a traditional therapy founded on the sum of human experience; and it can never prove that a therapy is useless in every case. An experiment seeking to test a therapy for poor lactation will be insensitive if an average group of mothers is selected, because the proportion of poor lactators in whom there is room for improvement will be small. It is traditionally accepted by shrewd farmers that contented cows produce more milk. Might it be that the same applies to human mothers so that the mothers in whom fluids were forced were discontented and that the subsequent reduction in milk production was nicely set off by the benefit derived from forced fluids? At any rate, this was one factor that was not adequately controlled.

The advance of medical science has been cumbered in the past by tradition and uncontrolled enthusiasm for each new treatment: now it has reached the stage where it is being hindered by the invalid conclusions drawn from "controlled" investigations claiming that, because no benefit was demonstrated in a trial, therefore the drug is useless.

Flimwell, near Wadhurst, Sussex. GEOFFREY E. LOXTON.

SHORTAGE OF MENTAL NURSES

SIR,—In your leading article last week you raise the question of the pay of mental nurses. I notice that a further increase in salaries is to be considered in the hope of stimulating recruitment to this branch of nursing. Obviously financial considerations play an important part in the recruitment of staff, but, in my opinion, this is now not the primary consideration.

If a girl is attracted to mental nursing, she is not going to be satisfied in looking after chronic mental patients, because her main duties would be feeding the patients and keeping them clean, giving sedatives and aperients, and walking the patients round airing courts for their daily exercise. The number of acute and recoverable cases in a large mental hospital of 2000 patients is probably only about 500, which means that the amount of treatment which a nurse in training can share in is very limited.

I have advocated for some time that the mental health service should be reorganised and that it should consist of: (1) psychiatric outpatient departments attached to general hospitals with a few inpatient beds for primarily psychosomatic problems and for teaching purposes; (2) acute psychiatric hospitals to which acute and recoverable psychotic patients should be admitted, and where active treatment of all kinds is carried out; (3) chronic mental hospitals where the irrecoverable cases are looked after and where the emphasis is placed on habit-training, occupational therapy, and research; and (4) neurosis centres, such as Belmont Hospital, where there are no legal formalities and which are run on the lines of general hospitals.

The last three hospitals should have a liaison with a general hospital and should form one group. In this way those nurses who are keen to do actual nursing would spend most of their time in the acute psychiatric hospitals and neurosis centres and be seconded to the chronic hospitals for part of their training. The senior medical staff (S.H.M.O.s and consultants) would do sessions in the various hospitals, so that they deal with a variety of patients, while the registrars would work for a period of 6–12 months in each hospital while they are obtaining their experience in psychiatry.

Those nurses who are keen to do actual nursing would stay in the acute hospitals, and there would always be a number of nurses (or nursing assistants) who would be content to work in the chronic hospitals and who would not wish to be worried by modern treatments and the nursing they entail. If patients were classified in this way, not only would they themselves benefit but research into the problems of chronic mental illness would be stimulated, thus possibly reducing the numbers of patients. I am convinced that at the same time more people would take up mental nursing as a career.

I realise that there are financial implications in such a scheme and, as a member of the South West Metropolitan Regional Hospital Board, I am aware that there is little money to spare these days. I should, however, like to see one such group of hospitals set up as an experiment.

Belmont Hospital, Sutton, Surrey. LOUIS MINSKI.

SIR,—Your realistic summary of the problem of nursing staff in mental hospitals is very welcome. I will not take up space in underlining your just remarks on inadequate pay, long hours of work, and overcrowded wards, as these are beyond dispute for anyone who faces the problem squarely; but I would like to draw attention to a differentiation which helps to perpetuate the attitude of "silly and outdated snobbery" to which you refer.

This is the unjustifiably great disparity between the provisions costs allocated for mental and general hospitals. In one regional area the contrasting average figures are under 15*s*. and over 20*s*. per head per week respectively. There are, of course, more special diets in general hospitals, but this must be considerably offset by the fact that the great majority of patients in a mental hospital are ambulant, with very healthy appetites, and many of them are usefully occupied. It is not so long ago that patients in mental hospitals had nothing to eat between a light tea at 4.30 P.M. and breakfast at 8 A.M.; and even today the "supper" served is hardly worthy of its title, consisting in many hospitals of something like bread and soup.

It is inevitable, also, that the lower standard of diet amongst patients is reflected in that of the nursing staff, when the money allowed for provisions is low. The mental nurse may well ponder over this difference, and, having excluded such possible explanations as her possessing a less refined gastronomic taste, a poorer appetite, or a smaller stomach, she may begin to think of other theoretical causes. Is psychiatry less important than other branches of medicine? Are mental patients of no consequence? Are mental nurses a lower caste in the profession? It is high time that many lay and medical authorities were cured of their prejudice against mental hospitals.

Park Prewett Hospital, Basingstoke. I. ATKIN.

THROMBOSIS OF LATERAL THORACIC VEIN

SIR,—The article by Dr. Parkes Weber in your issue of Jan. 16 calls attention rather indirectly to what I have long regarded as an important clinical entity—namely, primary thrombosis of the lateral thoracic vein.

In 1935 I published an article [1] on thrombosis following strain. This describes an entity which seems to follow the pattern of the better-known thrombosis of the axillary vein following strain; the exact ætiology of this axillary thrombosis is still in doubt. My article actually describes 3 cases of primary thrombosis of the lateral thoracic vein, illustrated by infra-red photography. The condition follows excessive or unusual exertion involving the use of the arm, and as it produces little in the way of symptoms it often escapes notice. It is of considerable practical importance because, in women, the finding of a tender cord running upwards behind the breast may give rise to difficulty in diagnosis and anxiety about any possible connection with disease of the breast.

1. Robinson, R. H. O. B. *Brit. J. Surg.* 1935, **23**, 296.

I have seen recently a further case of this type in which the surgeon in charge of the case was completely baffled, for he was unaware of the condition. There was some discoloration of the overlying skin, which I have noticed on other occasions, and the patient remembered over-reaching the corresponding arm some days previously.

I was surprised, in 1939, to discover Mondor's paper in which he describes what I take to be this condition and not unnaturally makes no reference to any English communication on the subject. Equally, however, I was unaware of Daniels's communication [2] in 1932, referred to by Dr. Parkes Weber.

There is no doubt that the condition is one of primary thrombosis presumably due to the tearing, by over-stretching, of small tributaries passing through the muscular sheaths. The condition can occur in other situations, for I recently thrombosed a segment of the basilic vein ; and I was agreeably surprised at the speed with which the condition cleared up—namely, in a fortnight. This rapid recovery is typical of primary thrombosis of the lateral thoracic vein, as Dr. Parkes Weber points out.

London, W.1. R. H. O. B. ROBINSON.

SKIN-TEMPERATURE AND BLOOD-FLOW

SIR,—We were interested to read (Jan. 9) the results obtained by Mr. Dickinson and Dr. Walder in their study of the preliminary heating test in the selection of patients for sympathectomy.

Using the Ketty radiosodium clearance technique to study simultaneously vascular changes in peripheral muscle and subcutaneous tissue during heating of the trunk, we demonstrated [3] that blood-flow through skin and subcutaneous tissue closely parallels changes in skin-temperature during the procedure ; but in general blood-flow through muscle is decreased when skin-temperature rises. Our conclusion was that skin-temperature changes during reflex heating are no indication of the circulation in underlying muscles.

A further study [4] showed that although no correlation was found between skin-temperature changes and muscle blood-flow, in about one-third of normal subjects an increased blood-flow was found in peripheral muscle following heating of the trunk. We suggested that it might be in this group of subjects that the occasional beneficial result of sympathectomy for intermittent claudication would be found ; and our figure bears a close relation to the proportion of postoperative improvements found by Dickinson and Walder.

Devonshire Royal Hospital, Buxton. R. HARRIS.

Royal Free Hospital, London. H. S. WILLIAMS.

REST AND MOVEMENT

SIR,—Having just read your leader of Jan. 9, I would like to say that since meeting Professor Perkins on ward rounds at Roehampton, and working with him at Lambeth Hospital in 1947, I have been guided by, and have put into practice, his principles concerning the treatment of fractures.

Since then I have never used a Thomas's splint (except for transport) or any other kind of external appliance in the treatment of femoral fractures. The majority of these patients have had skin traction applied by 'Elastoplast' and a weight and pulley—the latter being incorporated in a type of wooden "gibbet" clamped to the end of the bed, with the limb supported on pillows only.

Early active movements have been encouraged from the date of fracture, and the nursing staff have been in no doubt that nursing has been easier, particularly the use of bedpans and the prevention of pressure sores.

As a houseman in 1939, I was trained to use Thomas's splints and continued to use them until I met Professor Perkins in 1946. Having tried both methods, I have no hesitation in stating that both the functional result and the comfort of the patient are much improved when external splintage, either with or without a fixed ring, is avoided.

With regard to fractures of the humerus, from the neck to the supracondylar region, I have found no splintage necessary, apart from a "collar-and-cuff" and active movements, supervised by the physiotherapy department, from the day of injury.

My limited experience of the past six years has more than convinced me that external splintage is rarely necessary for the purpose of securing union of a fractured femoral or humeral shaft.

Hackney Hospital, London, E.9. R. F. READ.

SIR,—I was pleased to learn from your leading article of Professor Perkins's views on rest, particularly with reference to the treatment of tuberculous arthritis. For over 20 years I have been treating cases of tuberculosis of the spine on a Bradford frame. Considerable movement is possible with such treatment yet the lesions heal just as well as when methods involving more complete fixation are used. The same treatment has been used after spinal fusion with excellent results.

Middleton-in-Wharfedale, Yorks. H. E. RAEBURN.

SIR,—I have been reading with interest your leading article. Though rest in treatment has proved to be essential in many conditions, I venture to suggest that my system of exercises in the bath, mentioned in your columns [1] by the late Sir Leonard Hill, may prove useful in reducing demands on the heart and circulation while the patient is performing a full range of active movements.

London, W.1. T. R. TOGNA.

1. Hill, L. *Lancet*, 1952, i, 422.

2. Daniels, W. B. *Amer. J. med. Sci.* 1932, **183**, 398.
3. Harris, R., Martin, A. J., Williams, H. S. *Int. Congr. phys. Med.* 1952.
4. Harris, R., Martin, A. J., Williams, H. S. *Clin. Sci.* 1952, **11**, 429.

Appointments

LEATHAM, AUBREY, B.A., M.B. Camb., M.R.C.P. : consultant physician, St. George's Hospital, London.

East Anglian Regional Hospital Board:

BARUCH, K. W. M.B. Lpool : anæsthetic registrar, West Suffolk General Hospital.
GREEN, W. P. D., M.B. Lond. : senior medical registrar, East Suffolk and Ipswich Hospital.
REYNOLDS, J. A., M.R.C.S. : surgical registrar, East Suffolk and Ipswich Hospital.
THORLAKSON, T. K., M.D. Manitoba, F.R.C.S. : surgical registrar, East Suffolk and Ipswich Hospital.

Liverpool Regional Hospital Board:

O'BEIRN, NICHOLAS, M.B. N.U.I., T.D.D. : asst. chest physician, St. Helens area.
OSBORNE, G. V., M.B., M.CH. (ORTH.) Lpool, F.R.C.S.E. : part-time consultant orthopædic surgeon, Southport Promenade Hospital.
SEDZIMIR, BRONISLAW, M.D. Polish School of Medicine, F.R.C.S.E. : consultant neurosurgeon.
SHATWELL, G. L., M.B., M.CH. (ORTH.) Lpool, F.R.C.S. : part-time consultant orthopædic surgeon, Ormskirk County Hospital, and Rainhill Hospital.

Births, Marriages, and Deaths

BIRTHS

GRIFFITHS.—On Dec. 18, at King's College Hospital, to Barbara (née Grand), wife of Dr. Glyn I. T. Griffiths—a second daughter (Caroline Barbara).

HABIBIS.—On Jan. 12, at Queen Charlotte's Hospital, to Stella M. Murray, M.B., D.C.H., wife of Dr. Homer S. Habibis, 1A, Porchester Terrace, W.2—a daughter (their fourth child).

DEATHS

FIELDER.—On Jan. 11, at Cranwell, Rusthall, Tunbridge Wells, Frederick John Fielder, M.D. Lond., aged 83, late of 6, Raleigh Gardens, S.W.2.

Notes and News

THE EVEREST DOCTORS

ON Jan. 13 the Royal College of Surgeons, in their hospitable quarters in Lincoln's Inn Fields, honoured the three doctors lately returned from less friendly surroundings on Mount Everest. Two of them—Mr. Charles Evans, F.R.C.S., and Dr. Michael Ward—had been appointed Hunterian professors and lectured for the occasion; the third, Dr. Griffith Pugh, was unable to join them in this distinction because he was not a member of the surgeons' college, but he must have felt just as much at home as his fellow climbers amid the warm welcome of the surgeons, led by their vice-president, Sir Reginald Watson-Jones. In their lectures, the professors discussed some of the medical questions that they had had to deal with during the expedition; but they shrewdly anticipated that their audience would like to hear many details of the climbing—and these they provided, with the help of some splendid colour photographs. Mr. Evans told of his own part in the final stages of the ascent, and modestly made it sound all in the day of a mountaineer. But, as everybody knows, on May 25 Evans and Bourdillon climbed to the South Summit and brought back the first news of the fearsome ridge that lay between there and the top. They used the closed-circuit oxygen apparatus, which permits fast climbing but has its snags; for one thing, the large quantities of exhaled water vapour condensing in the apparatus may quickly turn to ice when the soda-lime canister is charged. Evans's apparatus was not working well on the vital day, but even this serious handicap did not deter them from their primary objective of reaching the South Summit—a memorable feat of mountaineering with the best of oxygen supplies. They had not enough oxygen to go farther, so it was with the slower but, on this occasion, surer help of the open-circuit apparatus that Hillary and Tenzing climbed to the summit on May 29.

A dinner was held after the lectures, and among the company were Lord Webb-Johnson, Lord Moran, Sir David Maxwell Fyfe, Sir Edwin Herbert, Mr. Justice Sellers, Prof. E. D. Adrian, P.R.S., and Mr. A. A. Gemmell, F.R.C.O.G. Sir John Hunt had hoped to be present, but circumstances had prevented him from attending. The college had also received a message from Sir Edmund Hillary, who was in Iceland. Proposing the toast of the three mountaineers, Sir Reginald Watson-Jones said he had heard that hot sweet lemon juice was so staple a drink at 20,000 feet and above on Everest that Tenzing's name for the party had been "the lemonade expedition." So fresh glasses were brought and the toast was drunk in hot lemon juice. Dr. Pugh, Mr. Evans, and Dr. Ward made brief but lively replies. Finally, there was a showing of some extracts from the Everest film, including the grim slow business of cutting a path up to the Lhotse Face to the South Col and the joyful descent of Hillary and Tenzing.

University of Cambridge

The following degrees have been conferred:

M.B., B.Chir.—I. M. Allison, J. D. Avison, S. G. Baylis, R. C. Benians, G. F. B. Birdwood, R. J. Blow, J. A. D. Briggs, L. F. Brunt, H. M. Buckland, L. R. L. Burton, D. J. Buttery, W. H. Carling, C. W. M. Cooper, F. S. Cozens, J. Crook, J. P. Dickson, D. G. Dingle, P. M. Dunn, Elizabeth A. Eldon, B. I. F. Eminson, J. R. T. Finlayson, J. T. Fitzsimons, R. H. Gibbon, J. T. Gibbs, G. McC. Gransden, J. W. Harding, G. H. Hilton, Betty Holt, Harold Jacobs, R. J. Knight, S. R. Laing, R. C. Lawson, S. P. Lock, C. M. McGregor, Jane F. Mackworth, M. C. G. Mantell, H. C. Masheter, G. F. Mayall, Evelyn J. Mitchell, Emanuel Moran, J. C. Newell Price, M. J. Purves, Ian Oswald, C. J. Pattinson, G. N. Penlington, J. G. Pritchard, E. S. Reed, G. A. Reed, D. K. Robinson, Lucy M. Rochelle, J. D. Salmon, P. T. Smith, J. K. Snell, I. G. Tait, J. L. Tasker, A. D. Thursz, D. E. Tunnadine, G. P. Vaughan, J. D. S. Vernon, Leonard Weiss, P. D. W. Wickenden, R. E. Williams, W. A. Williamson, J. R. Wood, S. M. Worrall.

An Elmore medical research studentship for 1954 has been conferred on Dr. J. A. Hilop.

University of Glasgow

On Jan. 16 the following degrees were conferred:

M.D.—* James Bruce, Helen I. W. Kerr-Taylor, * Robert Lamb, † J. M. McBride, Henry Thompson, R. M. L. Weir.

M.B., Ch.B.—Florence M. D. M. Adams, D. M. R. Adamson, W. G. Aitchison, J. A. H. Aitken, Elizabeth H. Arkile, W. G. Barbour, John Bolland, Evelyn M. Borland, R. H. Boyd, Elizabeth J. B. Buchanan, J. M. Cameron, W. S. Campbell, J. A. Chapman, W. H. Cochrane, J. A. Dand, W. A. Dawson, Marion R. H. Donald, R. G. Dryden, David Duncan, Stella E. G. Gibson, Katherine M. Girdwood, A. I. M. Glen, I. B. Hall, Margaret A. Hart, G. S. Henderson, Matthew Holmes, G. M. Jesner, J. H. Lawrie, Myra Leatham, W. J. Leishman, E. S. Livingstone, Isobel McClung, G. T. MacCulloch, Archibald McCutchion, A. J. McDonald, I. G. MacFarlane, J. A. McGarry, W. G. MacIntosh, J. C. MacIntyre, Alexander Mackintosh, Marion T. McKissock, J. S. MacLean, J. H. McLean, J. D. Mabon, William Mitchell, R. S. Moir, J. B. Morris, J. M. Neilson, J. M. Newton, R. A. H. Newton, W. A. Nicol, G. H. Parker, Andrew Patrick, Flora K. Prentice, Euphemia Cuigley, Helen A. Ritchie, Andrew Robertson, J. T. Robertson, A. W. R. Russell, I. D. Sanderson, R. W. Sharp, I. R. Sherret, C. E. Simpson, N. J. Skelton, W. D. Smith, W. M. Speirs, D. A. Stalker, Doreen Steel, Anne M. Stewart, Jean O. Struthers, Margaret A. Timmins, P. G. M. G. Walker, Margaret Wallace, A. S. Wilson, William Young.

* With commendation. † With high commendation.

University of St. Andrews

In recent examinations the following were successful:

M.D.—Norman Levinson.

M.B., Ch.B.—William Chaplain, I. M. Sutherland, Mary E. Woods.

Royal College of Surgeons of England

At a recent meeting of the council, with Sir Reginald Watson-Jones, a vice-president, in the chair, Prof. F. C. Wilkinson was admitted to the council as an invited representative of dental surgery. Prof. M. A. Rushton was appointed Charles Tomes lecturer for 1954. A Leverhulme scholarship was awarded to Dr. A. A. G. Lewis. It was decided to institute a postgraduate diploma in orthodontics for dental practitioners.

Mr. R. G. Macbeth was elected to the fellowship ad eundem.

The following were elected to the fellowship of the faculty of anæsthetists.

Dr. R. N. Sidebotham (Manchester), Dr. P. W. Thompson (Colchester), Dr. A. S. Adams (Cardiff), Dr. T. H. Christie (London), Dr. Birendralall Bhattacharjee (New Delhi), Dr. J. R. Bryson (Dunfermline), Dr. Yeshwant Ganesh Bhojraj (Bombay), Dr. D. A. Chadwick (Manchester), Dr. Jozef Lomaz (London), Dr. P. R. Mesham (Liverpool), Dr. T. W. Vanniasingham (London), Dr. Dorothy A. M. Carr (London), Dr. J. C. Clarke (Londonderry), Dr. V. B. Cook (Oxford), Dr. R. S. Atkinson (Doncaster).

Diplomas were also awarded, jointly with the Royal College of Physicians, to the following:

D.A.—J. C. S. Ainley-Walker, R. J. Aspinall, A. R. M. O. Attar, Monica T. Barry, Harry Beinart, R. A. Bennett, Yeshwant Ganesh Bhojraj, J. D. Bird, H. J. Birkhahn, Joseph Briffa, G. B. Burchell, Isobel J. D. Butters, P. C. Calvert, Dorothy B. Charlton, A. A. Collis, W. A. D. Combe, V. B. Cook, W. V. Cuschieri, Nandvadan Chhotalal Dalal, J. T. Davidson, K. W. Dodd, H. B. Dodwell, D. M. Downing, Deryck Duncalf, Diana M. Elkington, Bridget A. Evans, R. H. P. Fitzpatrick, A. F. Forbat, G. S. Fowler, Rosemary A. Fraser, Mary P. Gibson, R. S. Gillinson, M. W. Glossop, R. E. Graham, Jean M. Horton, D. G. Huntly, Nasir Husain Jafry, Brian Kay, A. S. M. Lamont, D. M. Lewis, C. D. Linton, J. A. Little, J. W. McCloy, Kathleen M. M. McDougall, E. J. McInnes, Jean C. Main, D. D. B. Morris, T. M. Mosa, P. J. Nobes, Kathleen M. O'Dea, T. G. Owen, Margaret J. Parbrook, J. A. R. Parker, Satyananda Pramanik, S. D. Pratt, F. S. Preston, Sonia A. Purdie, Shaikh Abdur Rahaman, Vipedu Rajagopalan, E. R. Reid, Stephanie Saville, D. A. S. Sichel, R. N. Sidebotham, John Stewart, J. B. Stirling, Saad Fadooli Tessy, G. C. Thick, P. W. Thompson, T. W. Vanniasingham, T. J. V. Voss, Joan M. Waterfall, Barbara Watson, Barbara M. Webber, N. C. Welply, Janet B. Woodroffe.

D.L.O.—Syed Ahmed, Eflong Eyo Bassey, Madan Mohan Chawla, C. B. Cornish, Gokulananda Das, W. B. L. Downing, S. G. Elder, W. J. C. Fitzgerald, A. P. Fuller, D. R. Haynes, C. A. Holborow, Gupteshwar Prasad Keshari, G. E. Mann, James Morgan, A. W. Morrison, F. C. Nagle, P. A. O'Meara, Amitava Ray, G. G. Rodriguez-Soto, K. N. Sabiel, Mohammad Sharif, H. R. Smart, A. C. Smith, K. F. M. Thomson, A. F. Wadon, D. P. C. Williams, R. G. Williams.

D.P.M.—J. S. P. Abeyawardena, H. D. Beckett, M. F. Bethell, Alexis Brook, I. C. Church, B. W. Davy, M. G. D. Davys, Cecile R. Doniger, Stefanie Felsenburg, Naphtali Goldman, J. D. Haldane, T. H. Kaplan, R. R. Knowles, T. A. Lambo, Stephanie M. Leese, John Newcombe, Hyman Rifikin, William Rodger, D. C. V. Stewart, W. H. Tait, B. B. Zeitlyn.

D.T.M. & H.—Anasuya Wamanrao Dukle, W. M. McCutcheon, Robindra Nath Mitra, Kwaafo Saakwa-Mante, D. R. P. Suriapperuma, Kyaw Sein Tum, E. E. Vella.

D.I.H.—Prabhat Kumar Bose, W. R. Brown, Patricia M. Elliott, Binaykumar Ghose, Renato Malan, C. R. A. Martin, F. G. Neild, Mohammad Kabeer Qureshi-Ul-Hashmi, Thomas Simpson, W. J. Smither.

D.Path.—P. B. Adamson, Gyawni Aung, A. J. E. Brafield, P. W. Harvey, Phyllida M. M. Roberts, Boris Ruebner, B. A. Woodger.

D.C.H.—D. E. Williams.

D.M.R.-D.—J. D. Nelson.

Order of St. John of Jerusalem

The Queen has sanctioned the following promotions in, and appointments to, this Order:

As Commanders.—Colonel F. A. Bearn, C.B.E., D.S.O., M.C., M.D., D. J. Johnson, M.B.E., M.R.C.S., H. S. Taylor-Young, F.R.C.S., J. A. L. Roberts, M.B., J. B. McKay, M.B., William Bain, M.B., N. J. L. Rollason, M.D., F. W. Hebblethwaite, M.B., T. F. Briggs, O.B.E., T.D., M.R.C.S., J. F. C. du Toit, M.B., The Hon. William Nicol, Major C. D. Donald, F.R.C.S.

As Officers.—H. I. Marriner, F.R.C.S., G. G. W. Hay, M.B., C. L. Worthington, M.B., A. E. Pinniger, O.B.E., M.B., A. T. G. Thomas, M.D., E. A. Malkin, F.R.C.S., W. R. A. Line, M.R.C.S., J. W. Silversides, M.B., A. M. Boyne, L.R.C.P.E., W. M. Dinwoodie, M.B., St. J. M. C. Birt, F.R.C.S., J. M. de Ville-es-Offrans, M.B.E., M.D., M. C. Cooper, M.C., M.R.C.S., Cawas Homi, M.B. Major Gilbert Brown, M.B., Surgeon Captain E. J. Mockler, M.B., J. A. R. Lavoipierre, M.D., J. S. Binning, M.B., E. F. Baines, L.M.S.S.A., W. G. McAfee, M.B., H. A. Johnson, M.B., R. C. Webster, M.D., R. R. Anderson, M.B., Miss Marian Maxwell Reekie, M.B.

Institute of Dermatology

A series of semi-permanent exhibitions is being shown at the institute during the winter course. The fifth, from Feb. 1 to 20, by Mr. R. J. Lunnon, will be on Medical Photography.

Society for Cultural Relations with the U.S.S.R.

On Thursday, Jan. 28, at 8.15 P.M., at 14, Kensington Square, London, W.8, Dr. Phyllis Dobbs will speak on the Care of Women and Children in the Soviet Union.

Investigation into Waiting-lists

The Welsh Regional Hospital Board is to give an initial grant of £1000 for an investigation into hospital waiting-lists, to be made with the coöperation of the Welsh National School of Medicine.

Congress on Laboratory Animals

The seventh congress of the Laboratory Animals Bureau is to be held at the University of Sheffield on April 5 and 6. Further particulars may be had from the bureau, Medical Research Council Laboratories, Holly Hill, Hampstead, London, N.W.3.

Royal Society

At a meeting of this society at 2.30 P.M. on Thursday, Jan. 28, at Burlington House, Piccadilly, London, W.1, Sir Bryan Matthews, F.R.S., will open a discussion on the Physiology of Man at High Altitudes. The speakers will include Dr. Raymond Greene, Dr. L. G. C. Pugh, Dr. H. L. Roxburgh, Dr. W. K. Stewart, and Dr. Michael Ward.

Variola Minor in the Netherlands

A woman who arrived in Holland on Nov. 22 from Genoa was later found to have variola minor. Between Dec. 11 and 17, chambermaids in the hotel where she stayed in the Hague fell ill with the disease, and by Jan. 14 23 cases (all in contacts) had been identified.

Prize for a Medical Film

The *Presse Médicale* are once more offering their "Prix annuel du Cinéma Médico-chirurgical" (frs. 100,000) for amateur films. Notices of entries should be sent to the secretariat of the journal, 120, Boulevard Saint-Germain, Paris VI, before March 1, and the films themselves before March 8.

National Institute for the Deaf

Mr. R. Scott Stevenson, F.R.C.S.E., has resigned from the chairmanship of the council because he is going to live in Gibraltar. He has held office since 1945. Mr. Edward Evans, M.P., vice-chairman of the council, has been elected chairman in his place, and Mr. Ian Robin, F.R.C.S., has been elected vice-chairman. On Jan. 7, at a dinner party attended by nearly 100 guests, tributes were paid to the work of Mr. Scott Stevenson and a presentation was made.

Reciprocal Registration With Victoria

The Medical (Registration) Act, 1953, lately passed by the Victorian Parliament, has now received The Royal Assent. This Act makes it possible once again for qualified British doctors to practise in the State of Victoria.

During 1953 British doctors were not able to register with the Victorian medical board. The Medical Act, 1950, which came into force on Jan. 1, 1953, increased the medical qualifications which the British Government regarded as necessary before doctors from the Commonwealth countries could practise in the United Kingdom. Victoria accordingly considered that she could not register British doctors again until her own legislation had been amended to provide for the same qualifications.

Army Medical Services in Canal Zone

On Jan. 9 Sir Cecil Wakeley, F.R.C.S., visited the medical services of the Army in the Suez Canal Zone, at the invitation of the Commander-in-Chief, M.E.L.F. He was shown the type of consulting-room which has replaced the former M.I. room, and he was told about the new system by which regimental medical officers can take their own patients to hospital, where, with suitable operating-theatres and anæsthesia, they can do their own minor surgery, having advice or help from the duty surgeon when necessary. The afternoon was devoted to a joint clinical meeting of doctors from the Royal Navy, the Army, and the Royal Air Force, held at the British Military Hospital, Fayid, with Major-General W. A. D. Drummond, F.R.C.S., in the chair. After tea, at which Colonel P. T. L. Day and the officers of the hospital were the hosts, Sir Cecil Wakeley gave a lecture on Surgery through the Ages. Later he visited the British Station Hospital at Moascar.

A similar visit was paid last August by Sir Stanford Cade.

Retirement of Sir Andrew Davidson

Sir Andrew Davidson, chief medical officer of the Department of Health for Scotland, is retiring on March 31. He was appointed in 1941.

Laws Relating to Mental Disorders

Lord Percy of Newcastle has been appointed chairman of the Royal Commission on the laws relating to mental disorders.

Diary of the Week

JAN 24 TO 30

Monday, 25th

ROYAL SOCIETY OF MEDICINE, 1, Wimpole Street, W.1
5.30 P.M. *Section of Odontology.* Prof. R. J. Last: Functional Rôle of the Muscles of the Mandible.

INSTITUTE OF CARDIOLOGY, National Heart Hospital, Westmoreland Street, W.1
9.30 A.M. Mr. P. R. Allison: Bronchoscopic Measurements of Left Auricular-Pressure.

MEDICAL SOCIETY OF LONDON, 11, Chandos Street, W.1
8.30 P.M. Mr. J. Hamilton Doggart, Dr. S. Pinder Meadows: Ophthalmic Evidence of General Disease.

MANCHESTER MEDICAL SOCIETY
9 P.M. (Medical School, The University, Manchester.) *Section of General Practice.* Dr. C. S. D. Don: Chronic Chest Conditions.

Tuesday, 26th

BRITISH POSTGRADUATE MEDICAL FEDERATION
5.30 P.M. (London School of Hygiene and Tropical Medicine, Keppel Street, W.C.1.) Prof. J. B. S. Haldane, F.R.S.: Genetics of Some Biochemical Abnormalities.

ROYAL SOCIETY OF MEDICINE
8 P.M. *Section of Medicine.* Mr. A. Dickson Wright, Prof. Clifford Wilson: Surgery of Hypertension. Dr. A. Rae Gilchrist, Dr. William Evans: Anticoagulant Therapy in Coronary Occlusion. Dr. J. J. R. Duthie, Dr. W. S. C. Copeman: Indications for Cortisone and A.C.T.H. in Rheumatoid Arthritis.

ST. MARY'S HOSPITAL MEDICAL SCHOOL, Paddington, W.2
5 P.M. Prof. J. McClure Browne: Dysmenorrhœa.

INSTITUTE OF DERMATOLOGY, St. John's Hospital, Lisle Street, W.C.2
5.30 P.M. Dr. P. F. Borrie: Vascular Disorders.

MANCHESTER MEDICAL SOCIETY
4.30 P.M. Dr. Lennox Johnston, Prof. J. Crighton Bramwell: Tobacco-smoking and Health.

Wednesday, 27th

ROYAL SOCIETY OF MEDICINE
5 P.M. *Section of Endocrinology.* Dr. G. I. M. Swyer, Dr. D. G. Ferriman, Dr. H. E. Le Marquand, Dr. Raymond Greene: Male Hypogonadism.

ST. MARY'S HOSPITAL MEDICAL SCHOOL
5 P.M. Prof. T. F. Rodger: Lecture-demonstration in Psychiatry.

INSTITUTE OF DERMATOLOGY
5.30 P.M. Dr. H. Haber: Parapsoriasis, Poikiloderma, and Mycosis Fungoides.

ROYAL FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW, 242, St. Vincent Street, Glasgow, C.2
5 P.M. Sir Ernest Finch: The Forerunner—Leonardo Da Vinci's Contribution to Anatomy and Physiology. (Dr. John Burns Lecture.)

Thursday, 28th

BRITISH POSTGRADUATE MEDICAL FEDERATION
5.30 P.M. (London School of Hygiene and Tropical Medicine.) Prof. E. Boyland, D.SC.: Chemotherapy of Cancer.

ROYAL COLLEGE OF SURGEONS, Lincoln's Inn Fields, W.C.2
5 P.M. Mr. R. H. C. Robins: Primary Reconstruction of the Injured Hand. (Hunterian lecture.)

ROYAL SOCIETY OF MEDICINE
8 P.M. *Section of Urology.* Mr. John Swinney: Urethroplasty in The Treatment of Stricture of the Urethra. Mr. Howard G. Hanley: Seminal Tuberculosis. Mr. Geoffrey Parker; Spontaneous Healing of a Rupture of the Bladder.

INSTITUTE OF CHILD HEALTH, The Hospital for Sick Children, Great Ormond Street, W.C.1
5.30 P.M. Dr. P. H. Sandifer: Cerebral Deterioration in Childhood

INSTITUTE OF DERMATOLOGY
5.30 P.M. Dr. J. O. Oliver: Disinfection and Sterilisation.

ROYAL ARMY MEDICAL COLLEGE, Millbank, S.W.1
5 P.M. Dr. C. H. Andrewes, F.R.S.: Recent Research on the Common Cold and Influenza.

WEST LONDON MEDICO-CHIRURGICAL SOCIETY
8.30 P.M. (South Kensington Hotel, 41, Queen's Gate, S.W.7.) Sir Harold Gillies: Surgical Aspects of Plastic Surgery.

NUFFIELD ORTHOPÆDIC CENTRE, Wingfield-Morris Orthopædic Hospital, Oxford
8.30 P.M. Prof. J. Trueta: Michael Servetus and the Development of Modern Science.

RENAL ASSOCIATION
4.30 P.M. (Ciba Foundation, 41, Portland Place, W.1.) Dr. R. V. Sellwood: Factors in the Excretion of Sodium.

Friday, 29th

INSTITUTE OF LARYNGOLOGY AND OTOLOGY, 330, Gray's Inn Road, W.C.1
3.30 P.M. Mr. A. R. Dingley: Hoarseness.

INSTITUTE OF DERMATOLOGY
5.30 P.M. Dr. Borrie: Vascular Disorders.

LONDON ASSOCIATION OF THE MEDICAL WOMEN'S FEDERATION
8.30 P.M. (Royal Free Hospital School of Medicine, 8, Hunter Street, W.C.1.) Dr. Mary J. Wilmers: Children and Streptococci.

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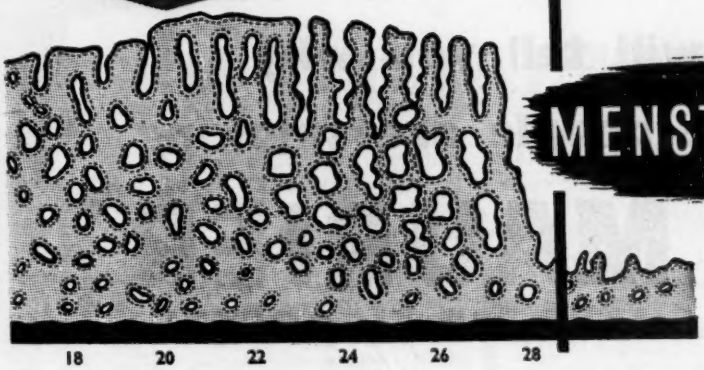

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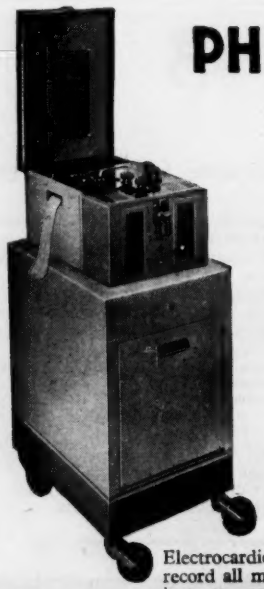

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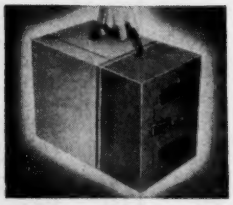

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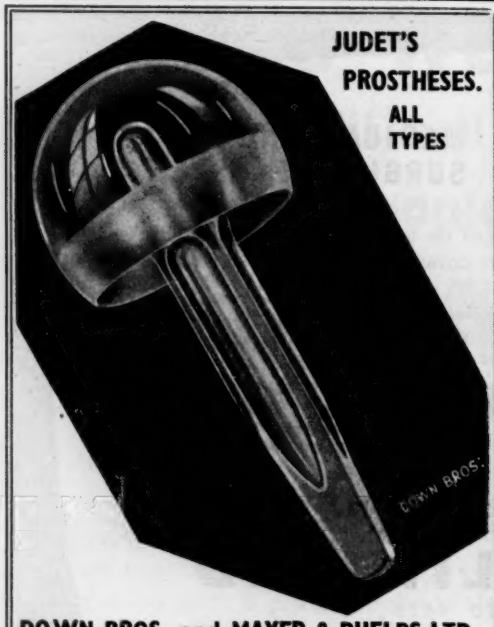

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The Terms and Conditions of Service of Hospital Medical and Dental Staff apply to all N.H.S. hospital posts we advertise, unless otherwise stated. Canvassing disqualifies, but candidates may normally visit the hospital by appointment.

Academic and Educational

ROYAL COLLEGE OF SURGEONS OF ENGLAND

PROFESSOR OF HUMAN AND COMPARATIVE PATHOLOGY

The Council invite applications for the Sir William Collins Professorship of Pathology in the Royal College of Surgeons of England. They will not be limited in their choice to those who make formal application, and reserve the right to fill the post by invitation.

The Professor will be responsible to the Council for the maintenance of the Pathology Museum and the Research work of his Department and will also be expected to take part in the teaching activities organised in the College by the Institute of Basic Medical Sciences.

The salary will be from £2250 to £2750 p.a. according to age and academic status, with arrangements for membership of the Federated Superannuation System for Universities.

Particulars and terms of appointment may be obtained from the Secretary. Applications with the names of 2 referees must reach the College not later than Monday, 1st March, 1954.

KENNEDY CASSELS, Secretary.

Lincoln's Inn-fields, W.C.2, December, 1953.

FACULTY OF ANÆSTHETISTS
ROYAL COLLEGE OF SURGEONS OF ENGLAND

BOARD OF FACULTY ELECTION, 1954

Notice is hereby given that an election to the Board will take place on WEDNESDAY, 10TH MARCH, 1954, at 3.30 P.M. The following are the candidates for election :—

Fellows

COPE, Robert William (Fellow 1948).
EVANS, Frankis Tilney (Fellow 1948).
HARBORD, Richard Penn (Fellow 1948).
JARMAN, Ronald, D.S.C. (Fellow 1948).
MILLAR, Edith Joan (Fellow 1948).
MORTON, Hugh John Vivian (Fellow 1948).
MUSHIN, William Woolf (Fellow 1948).
PINKERTON, Herbert Harvey (Fellow 1948).
PLEASANCE, Reginald Ernest (Fellow 1948).
GALLEY, Archibald Herbert (Fellow 1948).
FENELEY, George Leslie (Fellow 1949).
PARRY BROWN, Arthur Ivor (Fellow 1949).
MASON, Stanley Arthur (Fellow 1953).
BERKEN, James Frederick (Fellow 1953).
KNOWLES, Gordon Sheridan Alfred (Fellow 1953).

Members

No application has been received from any Member of the Faculty for Election to the Board, and there will therefore be a vacancy on the Board for the year 1954–55, and 2 vacancies will occur at the next Election in March, 1955.

W. F. DAVIS, Secretary.

Lincoln's Inn-fields, London, W.C.2.

UNIVERSITY OF LONDON

MARY SCHARLIEB RESEARCH STUDENTSHIP

Application is invited for the Mary Scharlieb Research Studentship, of the value of £250, for 1 year in the first instance. The Studentship is open to Graduates of the University who are registered medical practitioners or possess qualifications which in the opinion of the Senate would enable them to undertake postgraduate medical research.

Applications (on a prescribed form), must reach the Secretary to the Scholarships Committee, University of London, Senate House, London, W.C.1 (from whom a form of application and further particulars may be obtained), not later than 28th February, 1954.

UNIVERSITY OF LONDON INSTITUTE OF EDUCATION

DIPLOMA IN THE CONTENT AND METHODS OF HEALTH EDUCATION

An advanced course fo full-time students occupying 1 university year and beginning in OCTOBER, 1954, is open to qualified teachers, training college lecturers, medical practitioners, qualified nurses and others who are interested in the field of health education.

Candidates should have had experience in their own field and possess sufficient scientific background to satisfy the Institute that they can profit from the course.

The course will be organised by the Institute of Education with the coöperation of the London School of Hygiene and Tropical Medicine and of the Central Council for Health Education.

Further particulars may be obtained from Miss W. M. WARDEN, Institute of Education, Malet-street, W.C.1.

INSTITUTE OF BASIC MEDICAL SCIENCES
ROYAL COLLEGE OF SURGEONS OF ENGLAND
BRITISH POSTGRADUATE MEDICAL FEDERATION
(UNIVERSITY OF LONDON)

Applications are invited from candidates with medical or dental qualifications for the full-time post of LECTURER IN ANATOMY. The successful candidate will be expected to take part in the teaching activities of the Department of Anatomy and to have special responsibility for the teaching of dental students, and to undertake research in dental or allied anatomical problems. Salary will be within the University scale of £800–£100–£1100 p.a., together with membership of the F.S.S.U. The commencing salary will be determined by the age, qualifications and experience of the successful candidate.

Applications (3 copies), together with the names of 2 referees, should be sent not later than 19th February, 1954, to Prof. G. CAUSEY, Department of Anatomy, Royal College of Surgeons of England, Lincoln's Inn-fields, W.C.2, from whom further particulars may be obtained.

January, 1954.

INSTITUTE OF OBSTETRICS AND GYNÆCOLOGY

A REFRESHER COURSE

suitable for general practitioners, will be held from MONDAY, 1ST MARCH to SATURDAY, 6TH MARCH, 1954, with attendance at Queen Charlotte's Hospital, Chelsea Hospital for Women, and the Department of Obstetrics and Gynæcology at Hammersmith Hospital. The fee for the course is £5 5s. Limited hostel accommodation is available.

Apply Secretary, Institute of Obstetrics and Gynæcology, Chelsea Hospital for Women, Dovehouse-street, S.W.3.

THE LONDON HOSPITAL MEDICAL COLLEGE

COURSES IN ADVANCED SURGERY

An evening Postgraduate Course in Surgery for the Final Examination of the F.R.C.S., will be held at The London Hospital from 15TH MARCH to 26TH APRIL, 1954. The Course will be held on MONDAY and WEDNESDAY evenings from 6.30 P.M. to 8.30 P.M. with the exception of Monday, 19th April, and will be limited to 18 students.

Applications should be made to the Dean, from whom further particulars can be obtained. The fee for External candidates will be 16 guineas and for "Old Londoners" 10 guineas.

THE LONDON HOSPITAL MEDICAL COLLEGE
(UNIVERSITY OF LONDON)

THE HUTCHINSON PRIZE—VALUE £60

The subject of this Prize is : "Contribution to Clinical Medicine." Candidates must have been undergraduate students of The London Hospital, they are eligible up to the expiration of 10 years from the date of commencement of clinical studies, excluding any time spent in compulsory National Service and the period of Pre-registration House appointments. The Dissertation to be addressed to the Secretary, The London Hospital Medical College and delivered at the College not later than 4 P.M. on 31ST JULY, 1954.

Further particulars may be obtained from the Secretary, The London Hospital Medical College, Turner-street, E.1. (It is anticipated that the Prize will again be awarded in 1956, when the title will be "A contribution to Clinical Surgery.")

THE INSTITUTE OF LARYNGOLOGY AND OTOLOGY
(UNIVERSITY OF LONDON)
330/332, Gray's Inn-road, London, W.C.1

ADVANCED REVISION COURSE for Final F.R.C.S. students from 8TH FEBRUARY to 23RD APRIL, 1954. Arranged as part-time course (mostly evenings) to meet circumstances of students holding appointments. Fee £21.

INTENSIVE COURSE IN ENDOSCOPY for senior students and practising members of the specialty. Whole-time from 26TH APRIL to 1ST MAY, 1954. Includes practical work. Fee £10 10s.

INTENSIVE CLINICAL LECTURE COURSE from 1ST to 26TH FEBRUARY, 1954. Whole-time course intended to form a theoretical basis in preparation for practical clinical training. Fee £12 12s.

BASIC SCIENCES CLASS (with facilities for dissection) for Part I D.L.O. students from 22ND FEBRUARY to 28TH MAY, 1954. Fee £21.

Detailed syllabus obtainable from the Dean.

THE NUFFIELD FOUNDATION

MEDICAL FELLOWSHIPS

As part of its programme for the advancement of health, the Nuffield Foundation is prepared to award a number of Fellowships to highly qualified men and women of the United Kingdom, usually between the ages of 25 and 35, who wish to train further for teaching and research appointments in any branch of medicine.

Applications for awards in 1954 must be received not later than 1ST MAY, 1954.

The conditions of these Fellowships and the application forms are obtainable from the Director, The Nuffield Foundation, Nuffield Lodge, Regent's Park, London, N.W.1.

L. FARRER-BROWN, Director of the Nuffield Foundation.

SOCIETY OF APOTHECARIES OF LONDON

DIPLOMA IN INDUSTRIAL HEALTH

The next Examination will begin on MONDAY, 5TH JULY, 1954. The following Examination will be held in December, 1954.

For Regulations apply Registrar, Apothecaries' Hall, Black Friars-lane, London, E.C.4.

THE ROYAL SOCIETY

STOTHERT RESEARCH FELLOWSHIPS

Applications are invited by the Council of the Royal Society for 2 Stothert Research Fellowships in the field of Medicine, including the sciences on which medical knowledge is based. Each Fellowship will be tenable in any hospital, medical school or other appropriate research institution or university department in the British Isles or at any other place approved by the Council of the Royal Society. Candidates, who must be of British nationality, should supply the usual personal details and give the names of 2 referees. Testimonials will not be considered. Applicants and referees at a distance may write direct to the address given below, without first obtaining forms. The subject of the proposed research, and the place at which it would be carried out, together with the name of the Head of the department, should be given.

The appointments will be for 2 years in the first instance, from 1ST OCTOBER, 1954, and may be renewed annually up to a total of 4 years. The stipend will be £600 p.a., with increments of £50 p.a., and superannuation benefits to which the successful candidate will be required to contribute 5% of annual stipend and to which the Society will make a contribution of 10%.

Applications should be made on forms to be obtained from the Assistant Secretary, The Royal Society, Burlington House, London, W.1, and should be received as early as possible and not later than 30th April, 1954.

THE ROYAL SOCIETY

ALAN JOHNSTON, LAWRENCE AND MOSELEY RESEARCH FELLOWSHIP

Applications are invited by the Council of the Royal Society for the Alan Johnston, Lawrence and Moseley Research Fellowship into the problems of human and animal health and diseases and the biological field related thereto. The Fellowship will be tenable at any place approved by the Council of the Royal Society. Candidates should supply the usual personal details and give the names of 2 referees. Testimonials will not be considered. Applicants and referees at a distance may write direct to the address given below, without first obtaining forms. The subject of the proposed research and the place at which it would be carried out, together with the name of the Head of the department, should be given.

The appointment will be for 2 years in the first instance, from 1ST OCTOBER, 1954, and will be renewable up to a maximum of 5 years. It will be subject to the conditions governing Royal Society Research Appointments. The stipend will be £1000 p.a., with annual increments of £75 p.a., with superannuation benefits to which the successful candidate will be required to contribute 5% of annual stipend and to which the Society will make a contribution of 10%.

Applications should be made on forms to be obtained from the Assistant Secretary, The Royal Society, Burlington House, London, W.1, and should be received as early as possible, in any case not later than 30th April, 1954.

THE LONDON HOSPITAL MEDICAL COLLEGE. (UNIVERSITY OF LONDON.) Applications are invited for the post of DEMONSTRATOR IN PHARMACOLOGY on the salary scale £600–£750 p.a., together with membership of the F.S.S.U. and family allowances of £50 p.a. for each child. Initial salary will be dependent on qualifications and experience. The successful candidate will have time and opportunities for working for a higher qualification (medical or scientific).

Applications (3 copies), together with the names of 2 referees, must be received not later than 15th February, 1954, by the Secretary, The London Hospital Medical College, Turner-street, E.1.

WESTMINSTER MEDICAL SCHOOL (University of LONDON), 17, Horseferry-road, London, S.W.1. JUNIOR LECTURER AND HOSPITAL BIOCHEMIST (non-medical), Male or Female, required for Department of Chemical Pathology on 5th April, 1954. Salary scale £600–£50–£750 p.a. plus superannuation and family allowance. Duties concerned mainly with blood analysis, but would include the development of new analytical methods. Honours Science degree and some analytical or research experience essential.

Applications, with names of 2 referees, to Secretary by 20th February, 1954.

UNIVERSITY OF LONDON. The Senate invite applications for the READERSHIP IN MORBID ANATOMY tenable at London Hospital Medical College (salary not less than £1500 a year).

Applications (10 copies) must be received not later than 22nd February, 1954, by the Academic Registrar, University of London, Senate House, W.C.1, from whom further particulars should be obtained.

UNIVERSITY OF LEEDS. UNITED LEEDS HOSPITALS. Applications are invited for the post of SENIOR REGISTRAR AND TUTOR IN PSYCHIATRY. The successful candidate will be a member of the University Department of Psychiatry and the duties will include work at the hospitals with which the University Department is associated and such other duties as may be assigned to him by the Head of the University Department.

Applications (3 copies), stating age, qualifications, and details of present and previous appointments with dates, and experience of teaching, together with the names of 3 referees, should reach the Registrar, The University, Leeds, 2 (from whom further particulars may be obtained), not later than 22nd February, 1954.

THE UNIVERSITY OF LEEDS. Department of Psychiatry. Applications are invited from suitably qualified registered medical Men or Women for the post of either SENIOR LECTURER or LECTURER IN CHILD PSYCHIATRY on the salary scale £1600–£100–£2000 a year for a Senior Lecturer and £1000–£100–£1500 for a Lecturer. In addition to teaching and research work, the successful candidate will undertake work in the Child Guidance Clinic run by the Department, and in the Child Guidance Service of the County Council of the West Riding. The appointment will be effective as soon as may be arranged.

Applications (12 copies), stating age, qualifications and experience, together with the names of 3 referees, should reach the Registrar, The University, Leeds, 2 (from whom further particulars may be obtained), not later than 22nd February, 1954.

THE UNIVERSITY OF SHEFFIELD. Applications are invited for a newly instituted Full-time CHAIR OF SURGERY. The Professor will be granted an honorary contract (in the rank of Consultant) by the Board of Governors of the United Sheffield Hospitals and will take charge of an existing Clinical Unit in the Royal Infirmary, Sheffield, where a building, shortly to be undertaken by the University, will provide new laboratory and teaching facilities. The possibility also exists of development of a professorial unit under the Sheffield Regional Hospital Board.

Further particulars should be obtained from the Registrar, The University, Sheffield, 10, and applications for the Chair should reach him not later than 27th February, 1954.

CHARING CROSS HOSPITAL MEDICAL SCHOOL, 62, Chandos-place, London, W.C.2. TEMPORARY ASSISTANT LECTURER IN ANATOMY required to begin duties immediately. Minimum salary £600 p.a.

Further information and form of application may be obtained from the Secretary.

THE WELSH NATIONAL SCHOOL OF MEDICINE. (UNIVERSITY OF WALES.) Applications are invited for the appointment of PROFESSOR OF ANÆSTHETICS. The appointment is a full-time one and the salary will be on the scale £2250–£100–£2750 p.a., with participation in the superannuation and family allowance schemes.

Further particulars may be obtained from the undersigned by whom applications must be received within 28 days of the appearance of this advertisement.

34, Newport-road, Cardiff. F. DODSWORTH, Secretary.

LONDON SCHOOL OF HYGIENE AND TROPICAL MEDICINE. Applications are invited for the appointment of JUNIOR LECTURER in the Department of Entomology. The appointment, to date from 1st October, 1954, or earlier, will be for 2 years in the first instance with the possibility of an extension for a further year. Salary £600–£50–£750 a year.

Applications, stating age, qualifications with dates, and previous experience, should be sent to the Assistant Dean, London School of Hygiene and Tropical Medicine, Keppel-street (Gower-street), London, W.C.1, not later than 1st June, 1954

INSTITUTE OF CARDIOLOGY. (Associated with the National Heart Hospital, Westmoreland-street, London, W.1.) Applications are invited for the full-time post of ASSISTANT DIRECTOR, salary scale corresponding to that of Reader (£1500–£100–£2000) with family allowances and superannuation under the F.S.S.U. Duties will consist of research, teaching and care of beds and an outpatient clinic. The appointment will be for 3 years in the first instance, subject to annual confirmation, and may thereafter be renewed by annual reappointment.

Further information may be obtained from the Dean at 35, Wimpole-street, W.1, to whom applications, together with the names of 3 referees, should be sent not later than 12th March, 1954.

Hospital Services : Senior Appointments

BETHLEM ROYAL HOSPITAL AND THE MAUDSLEY HOSPITAL. The Board of Governors invite applications from Psychiatrists of requisite qualifications for 2 posts of PHYSICIAN to attend on 2 and 3 sessions a week, respectively. Applicants should have experience in general psychiatry and psychotherapy. The Board would be prepared to consider the appointment of the same applicant to both posts if desired.

Applications (10 copies), stating clearly whether for 2, 3, or 5 sessions, and giving curriculum vitæ and the names of 3 referees should be sent to K. J. JOHNSON, House Governor and Secretary, The Maudsley Hospital, Denmark-hill, London, S.E.5, not later than 28th February, 1954.

BETHLEM ROYAL HOSPITAL AND THE MAUDSLEY HOSPITAL. The Board of Governors invite applications from Psychiatrists of requisite qualifications for the post of PHYSICIAN. The post is at present a full-time one, but applicants prepared to accept appointment for 9 sessions a week would also be considered. The post is of Consultant status and the person appointed will be expected to undertake charge of beds.

Applications (10 copies), stating clearly the preference (if any) for appointment for full-time or 9 sessions, and giving curriculum vitæ and the names of 3 referees, should be sent to K. J. JOHNSON, House Governor and Secretary, The Maudsley Hospital, Denmark-hill, London, S.E.5, not later than 28th February, 1954.

CHARING CROSS HOSPITAL GROUP. Surgeon to Harrow Hospital. The post is of Consultant status. Candidates, who must be Fellows of the Royal College of Surgeons of England, will be required to attend for 2 sessions per week, to undertake Outpatient and operation sessions, and emergencies.

Applications (24 copies), stating date of birth, qualifications and experience, and the names of 3 referees, should reach the undersigned by 5th February, 1954.

FRANK HART, Secretary to the Board.

QUEEN CHARLOTTE'S AND CHELSEA HOSPITALS. Applications are invited for the appointment of Part-time DIAGNOSTIC RADIOLOGIST (Consultant status) at Chelsea Hospital for Women. The appointment is on the basis of 2 notional half-days per week.

Applications, together with the names of 3 referees, should be lodged with the Secretary to the Board of Governors at 339, Goldhawk-road, W.6, not later than 8th March, 1954.

ROYAL CANCER HOSPITAL, Fulham-road, London, S.W.3. Applications are invited for post of ANÆSTHETIST in the grade of Consultant. Candidates must be registered medical practitioners and hold the Diploma in Anæsthesia. The successful candidate will be required to attend 3 sessions per week at first, probably to be increased to 5 later.

Applications (12 copies), quoting age, education, experience, and giving the names of 3 referees, to reach the House Governor by 15th February, 1954.

SOUTH EAST METROPOLITAN REGIONAL HOSPITAL BOARD. Applications are invited for an appointment as Part-time CONSULTANT RADIOLOGIST (4 notional half-days a week) to the Greenwich and Deptford and Woolwich Groups of hospitals, for duties at St. Alfege's Hospital, Vanbrugh Hill, S.E.10 (Tuesday and Thursday mornings) and at Eltham and Mottingham Hospital, High-street, Eltham, S.E.19. (No days and times fixed, but the 2 sessions should be towards the beginning and end of the week, respectively.) Candidates must have had a wide experience in diagnostic radiology and hold an appropriate Diploma. The appointment will be in accordance with the terms and conditions of service of hospital medical and dental staffs (England and Wales). Candidates may visit the hospitals concerned.

Apply, stating nationality, age, sex, qualifications, and experience, including details of present appointment and of war service, together with the names and addresses of 3 referees, to the Secretary, Advisory Appointments Committee, South East Metropolitan Regional Hospital Board, 11, Portland-place, W.1, not later than 6th February, 1954.

NORTH WEST METROPOLITAN REGIONAL HOSPITAL BOARD. ASSISTANT OPHTHALMOLOGIST required at Willesden General Hospital, Harlesden-road, N.W.10 (127 Beds), for 2 half-days a week. Salary scale £1300 (at age 32)–£1750. Appointments normally made from candidates over 32 years, but applications from candidates under that age considered. Hospital may be visited by direct appointment.

Detailed applications, including date of birth, and names of 3 referees, to Secretary, North West Metropolitan Regional Hospital Board, 11A, Portland-place, W.1, by 1st March, 1954.

NORTH WEST METROPOLITAN REGIONAL HOSPITAL BOARD. CONSULTANT E.N.T. SURGEON required at Colindale Hospital, The Hyde, N.W.9 (237 Beds), for 1 half-day a week (at present Monday P.M.). Hospital may be visited by direct appointment.

Detailed applications, including date of birth and names of 3 referees, to Secretary, North West Metropolitan Regional Hospital Board, 11A, Portland-place, W.1, by 3rd March, 1954.

AMENDED ADVERTISEMENT

NORTH WEST METROPOLITAN REGIONAL HOSPITAL BOARD. PÆDIATRICIAN (Consultant) required for a combined appointment. Duties at King Edward Memorial Hospital, Ealing, W.13 (165 Beds), for 2 half-days a week, and King Edward VII Hospital, Windsor (540 Beds), Maidenhead Hospital, Maidenhead (100 Beds), and Upton Hospital, Slough (213 Beds, including Iver, Denham and Langley Cottage Hospital), for 6 half-days a week. Successful candidate would be required to reside within reasonable distance of Windsor. Hospitals may be visited by direct appointment.

Detailed applications, including date of birth and names of 3 referees, to Secretary, North West Metropolitan Regional Hospital Board, 11A, Portland-place, W.1, by 6th February, 1954.

WESTMINSTER HOSPITAL, St. John's-gardens, S.W.1. REFRACTIONIST (Senior Hospital Medical Officer) required for 1 session per week (Thursday afternoon). Terms and conditions of service of hospital medical and dental officers for time being in operation apply. Canvassing of Members of Board or Advisory Appointments Committee will disqualify.

Applications (12 copies), with names of 3 referees, should reach me not later than 12th February, 1954.

CHARLES M. POWER, House Governor and Secretary.

BIRMINGHAM REGIONAL HOSPITAL BOARD.

(*a*) **South Warwickshire Group of hospitals**

Whole-time ASSISTANT CHEST PHYSICIAN (£1300–£1750 p.a.). Duties mainly at Heathcote Hospital and also at hospitals and clinics in the area. Experience specialty required. Flat available—Heathcote Hospital.

(*b*) **Birmingham (Dudley Road) Group of hospitals**

Part-time ASSISTANT OPHTHALMOLOGIST (£1300–£1750 p.a.). 6 notional half-days weekly. Duties mainly at Birmingham and Midland Eye Hospital. Wide experience specialty required.

(*c*) **Coventry Group of hospitals**

Part-time ASSISTANT OPHTHALMOLOGIST (£1300–£1750 p.a.). 3 notional half-days weekly. Duties at Manor Hospital (2 notional half-days) and Coventry and Warwickshire Hospital (1 notional half-day).

Applications (15 copies), stating name, age, nationality, qualifications, present and previous appointments and details of 3 referees, to Secretary, 10, Augustus-road, Birmingham, 15, before 8th February, 1954.

BIRMINGHAM REGIONAL HOSPITAL BOARD.

(*a*) **Midland Centre for Neurosurgery, Smethwick Hospital**

Part-time CONSULTANT NEUROLOGIST (7 notional half-days weekly). Duties in new Neurosurgical Centre. Considerable experience specialty essential.

(*b*) **Birmingham Regional Hospital Board and United Birmingham Hospitals**

Joint appointment by both Boards of Part-time CONSULTANT RADIOLOGIST (9 notional half-days weekly). Duties at new Midland Centre for Neurosurgery, Smethwick Hospital (6½ notional half-days) and United Birmingham Hospitals (2½ notional half-days). Experience neurological radiology essential.

(*c*) **Midland Centre for Neurosurgery, Smethwick Hospital and West Bromwich Hospital Group**

Part-time CONSULTANT ANÆSTHETIST (9 notional half-days weekly). Duties at new Neurosurgical Centre (6 notional half-days) and in West Bromwich Hospital Group (3 notional half-days). Higher qualification and experience neurosurgical anæsthesia required.

(*d*) **Birmingham Regional Hospital Board and United Birmingham Hospitals**

Joint appointment by both Boards of Part-time CONSULTANT ANÆSTHETIST (9 notional half-days weekly). Duties at new Midland Centre for Neurosurgery, Smethwick Hospital (6 notional half-days) and United Birmingham Hospitals (3 notional half-days). Higher qualification and experience neurosurgical anæsthesia required.

Applications (15 copies), stating name, age, nationality, qualifications, present and previous appointments and details of 3 referees, to Secretary, 10, Augustus-road, Birmingham, 15, before 8th February, 1954.

EAST ANGLIAN REGIONAL HOSPITAL BOARD. ASSISTANT CHEST PHYSICIAN (whole-time), Great Yarmouth and Lowestoft Chest Clinic Area. Main clinic situated in Great Yarmouth. Higher medical qualification and wide experience in tuberculosis and diseases of the chest essential. Salary scale £1300–£1750.

Detailed applications (8 copies), including age, to Secretary of Board, 117, Chesterton-road, Cambridge, by 8th February, 1954. Candidates invited to visit clinics by direct arrangement with Hospital Management Committee Secretary, Norfolk and Norwich Hospital, Norwich.

LEEDS REGIONAL HOSPITAL BOARD. Part-time appointment (8 sessions per week) of CONSULTANT in General Surgery for duties at hospitals in the Pontefract and Goole areas. The person appointed to reside within 5 miles of Goole and on the Pontefract side of Goole.

Applications (10 copies), stating age, qualifications, and details of appointments held showing dates, with names and addresses of 3 referees, to the Secretary, Park-parade, Harrogate, not later than 12th February, 1954.

LEEDS REGIONAL HOSPITAL BOARD. Whole-time ASSISTANT ANÆSTHETIST (Senior Hospital Medical Officer scale) for duties at Hospitals in the Leeds A and Leeds B Groups. The person appointed to reside in or within 5 miles of Leeds.

Applications (10 copies), stating age, qualifications, and details of appointments held showing dates, with names and addresses of 3 referees, to the Secretary, Park-parade, Harrogate, not later than 12th February, 1954.

LEEDS REGIONAL HOSPITAL BOARD. 2 Whole-time ASSISTANT PSYCHIATRISTS (Senior Hospital Medical Officer scale) for duties at Storthes Hall Hospital, Kirkburton, near Huddersfield (2500 Beds), and associated clinics at Huddersfield, Halifax, and Dewsbury. Applicants should hold the D.P.M. or equivalent qualifications. Resident or non-resident. An unfurnished family flat is available if required and accommodation is also available for a single person.

Applications (10 copies), stating age, qualifications, and details of appointments held showing dates, with names and addresses of 3 referees, to the Secretary, Park-parade, Harrogate, not later than 12th February, 1954.

LIVERPOOL REGIONAL HOSPITAL BOARD. No. 2 MOBILE MASS RADIOGRAPHY UNIT. Applications are invited for the post of MEDICAL DIRECTOR to the above Unit which covers the Liverpool Regional area north of the River Mersey. Applicants should have had considerable experience in the diagnosis and treatment of diseases of the chest. In addition to his duties as Medical Director, the person appointed will undertake limited clinical work in the Regional Chest Service. Salary £1300 (at age 32)–£50–£1750 p.a.

Forms of application from and to be returned to Dr. T. Lloyd Hughes, Senior Administrative Medical Officer, Liverpool Regional Hospital Board, 19, James-street, Liverpool, 2, to be received not later than 13th February, 1954.

VINCENT COLLINGE, Secretary to the Board.

LIVERPOOL REGIONAL HOSPITAL BOARD. Clatterbridge GENERAL HOSPITAL. Applications are invited for the post of Whole-time ASSISTANT ORTHOPÆDIC SURGEON with duties at the above Hospital. Salary £1300–£50–£1750 p.a. The successful applicant will work under the direction of the Consultant Orthopædic Surgeon. Preference will be given to candidates possessing a higher qualification.

Forms of application from and to be returned to Dr. T. Lloyd Hughes, Senior Administrative Medical Officer, Liverpool Regional Hospital Board, 19, James-street, Liverpool, 2, to be received not later than 13th February, 1954.

VINCENT COLLINGE, Secretary to the Board.

MANCHESTER REGIONAL HOSPITAL BOARD invite applications for the part-time post (8 half-days weekly) of CONSULTANT OPHTHALMOLOGIST to the Bolton and District Hospital Centre (special Ophthalmic Unit of 25 Beds at Bolton Royal Infirmary). Initially the successful candidate will be required to devote about 5 hours a week to the Bury General Hospital, but later will devote himself entirely to Bolton. Wide experience and higher qualifications essential.

Application forms from the Senior Administrative Medical Officer to the Board at Cheetwood-road, Manchester, 8, to be returned by 15th February, 1954.

NORTH WEST METROPOLITAN REGIONAL HOSPITAL BOARD. CONSULTANT ANÆSTHETIST required for 3 half-days a week at Upton Hospital, Slough (213 Beds). Hospital may be visited by direct appointment.

Detailed applications, including date of birth and names of 3 referees, to Secretary, North West Metropolitan Regional Hospital Board, 11A, Portland-place, W.1, by 28th February, 1954.

NORTH WEST METROPOLITAN REGIONAL HOSPITAL BOARD. ASSISTANT CHEST PHYSICIAN (whole-time) required at Uxbridge Chest Clinic, 259, High-street, Uxbridge, Middlesex, and for the tuberculosis beds in the Group (109 Beds). Salary scale £1300 (at age 32)–£1750. Candidates should have good general medical experience and special experience in tuberculosis and diseases of the chest. Appointments normally made from candidates over 32 years, but applications from candidates under that age considered. Clinic may be visited by direct appointment.

Detailed applications, including date of birth, and names of 3 referees, to Secretary, North West Metropolitan Regional Hospital Board, 11A, Portland-place, W.1, by 1st March, 1954.

NORTH WEST METROPOLITAN REGIONAL HOSPITAL BOARD. CONSULTANT OBSTETRICIAN AND GYNÆCOLOGIST required for 3 half-days a week in the Maternity Units at Luton and Hitchin, centred mainly at Luton Maternity Hospital, Luton (78 Beds), and North Herts Hospital, Hitchin (40 maternity beds). Hospitals may be visited by direct appointment.

Detailed applications, including date of birth and names of 3 referees, to Sectetary, North West Metropolitan Regional Hospital Board, 11A, Portland-place, W.1, by 4th March, 1954

SOUTH WEST METROPOLITAN REGIONAL HOSPITAL BOARD requires Locum ANÆSTHETIST (9 half-days per week) for the Salisbury Group from 18th to 31st March, 1954. Remuneration 45 guineas per week (if holding National Health Service Consultant grading) or 31½ guineas per week.

Apply immediately to Dr. J. REVANS,
"Highcroft," Romsey-road, Winchester, Hants.

OXFORD REGIONAL HOSPITAL BOARD. Applications are invited from registered medical practitioners for the whole-time post of ASSISTANT PSYCHIATRIST (Senior Hospital Medical Officer) for Pewsey Hospital for Mental Defectives, Pewsey, Wilts (750 Beds), and ancillary premises. A self-contained flat is available. Applicants must have had experience of work in a Mental Deficiency Institution and preference will be given to those holding the D.P.M. The Hospital may be visited by arrangement with the Physician-Superintendent from whom further details may be obtained.

Applications (9 copies), stating age, qualifications, &c., with the names of 3 referees, should reach the Secretary of the Board, 43, Banbury-road, Oxford, by 15th February, 1954.

SOUTH WEST METROPOLITAN REGIONAL HOSPITAL BOARD requires Whole-time ASSISTANT PSYCHIATRIST (Senior Hospital Medical Officer grade) at Botleys Park Hospital, Chertsey, Surrey, a modern mental deficiency hospital of 1500 Beds. Candidates should have D.P.M. and considerable experience of M.D. practice. Accommodation available for a single person.

Applications (5 copies), giving date of birth, qualifications, experience, and names of 3 referees, to Secretary (S.1), South West Metropolitan Regional Hospital Board, 11A, Portland-place, W.1, by 13th February, 1954. Applicants may visit Hospital by local arrangement.

SOUTH WEST METROPOLITAN REGIONAL HOSPITAL BOARD requires Whole-time ASSISTANT PATHOLOGIST (Senior Hospital Medical Officer grade) at St. Helier Hospital, Carshalton, Surrey. Candidates must have considerable experience in morbid anatomy and bacteriology, and experience in cytology and mycology of chest diseases desirable.

Applications (5 copies), giving date of birth, qualifications, experience, and names of 3 referees, to Secretary (S.1), South West Metropolitan Regional Hospital Board, 11A, Portland-place, W.1, by 13th February, 1954. Applicants may visit Hospital by local arrangement.

SCOTLAND. NORTHERN REGIONAL HOSPITAL BOARD. Applications are invited for the post of Part-time CONSULTANT in Ophthalmology (9 notional half-days).

Schedules of application, which should be lodged by 13th February, 1954, are obtainable from the undersigned, who will also supply further particulars.

A. M. FRASER, M.D.,
Secretary and Administrative Medical Officer.
Office of the Northern Regional Hospital Board,
Raigmore, Inverness.

SCOTLAND. NORTHERN REGIONAL HOSPITAL BOARD. Applications are invited for the post of MEDICAL SUPERINTENDENT of the Inverness Group of hospitals. The salary scale is £1550–£75(2)–£1700–£100–£1800. A house is available at the Royal Northern Infirmary, Inverness.

Schedules of application and further particulars of the post are obtainable from the undersigned, with whom applications should be lodged by 13th February, 1954.

A. M. FRASER, M.D.,
Secretary and Administrative Medical Officer.
Office of the Northern Regional Hospital Board,
Raigmore, Inverness.

SCOTLAND. WESTERN REGIONAL HOSPITAL BOARD. Applications are invited for the appointment of GROUP MEDICAL SUPERINTENDENT, Stirling and Clackmannan Hospitals. Salary on the scale £1550–£75(2)–£100–£1800. This appointment is subject to the National Health Service (Scotland) superannuation regulations.

Applications (16 copies), stating date of birth, qualifications, experience, present appointment, and the names of 3 referees, to reach the Secretary, Western Regional Hospital Board, 64, West Regent-street, Glasgow, not later than 30 days after the publication of this advertisement.

SCOTLAND. WESTERN REGIONAL HOSPITAL BOARD. Applications are invited for the appointment of Whole-time ASSISTANT RADIOLOGIST based in the first instance on Ballochmyle Hospital, Mauchline, with duties in other hospitals administered by the Boards of Management for both Northern and Southern Ayrshire Hospitals. This appointment is subject to the National Health Service (Scotland) superannuation regulations.

Applications (16 copies), stating date of birth, qualifications, experience, present appointment, and the names of 3 referees, to reach the Secretary, Western Regional Hospital Board, 64, West Regent-street, Glasgow, not later than 30 days after the publication of this advertisement.

SCOTLAND. WESTERN REGIONAL HOSPITAL BOARD. Applications are invited for the appointment of SENIOR CONSULTANT ANÆSTHETIST to Stobhill Hospital and the hospitals under the control of the Board of Management for Glasgow Northern Hospitals. The appointment is whole-time or part-time on the basis of 9 sessions weekly. This appointment is subject to the National Health Service (Scotland) superannuation regulations.

Applications (16 copies), stating date of birth, qualifications, experience, present appointment, and the names of 3 referees, to reach the Secretary, Western Regional Hospital Board, 64, West Regent-street, Glasgow, not later than 30 days after the publication of this advertisement.

SHEFFIELD REGIONAL HOSPITAL BOARD. Maximum Part-time CONSULTANT ANÆSTHETIST required for the Rotherham and Mexborough Hospital Management Committee Group (Doncaster Gate Hospital (155 Beds); Moorgate Hospital, Rotherham (358 Beds); and Montagu Hospital, Mexborough (123 Beds)).

Application forms and further details from Senior Administrative Medical Officer, Sheffield Regional Hospital Board, Old Fulwood-road, Sheffield. Forms to be returned by 13th February, 1954.

SHEFFIELD REGIONAL HOSPITAL BOARD. Whole-time ASSISTANT ANÆSTHETIST for the Leicester Royal Infirmary and Leicester General Hospital, with possibly some duties at other hospitals in the Leicester area. Candidates should be in possession of the D.A. Salary scale £1300–£50–£1750 p.a.

Application forms and further details from the Senior Administrative Medical Officer, Sheffield Regional Hospital Board, Old Fulwood-road, Sheffield. Completed forms to be returned by 20th February, 1954.

SHEFFIELD REGIONAL HOSPITAL BOARD. Whole-time RESIDENT or NON-RESIDENT SENIOR CASUALTY OFFICER at the Scunthorpe and District War Memorial Hospital. Salary within the range of £1300–£50–£1750. Tenure for a period not exceeding 4 years.

Application forms and further details from the Senior Administrative Medical Officer, Sheffield Regional Hospital Board, Old Fulwood-road, Sheffield. Forms to be returned by 20th February, 1954.

WELSH REGIONAL HOSPITAL BOARD. Applications are invited for the whole-time appointment of a CONSULTANT PATHOLOGIST to serve the Cardiff Hospital Management Committee. The successful candidate will be based at Sully Hospital, Sully, near Cardiff (Thoracic Centre), may be expected to serve other hospitals in the district and may also have teaching duties in the Welsh National School of Medicine. Candidates should be in possession of a higher qualification in medicine or pathology. Special experience including research in the field of chest diseases will be an advantage.

Applications (12 copies), stating age, giving a summary of qualifications, experience, previous appointments with dates, and publications, together with the names of 3 referees, should be addressed to the Senior Administrative Medical Officer, Welsh Regional Hospital Board, Cathays Park, Cardiff, within 21 days of appearance of this advertisement.

NORTHERN IRELAND HOSPITALS AUTHORITY invite applications for the part-time post of CONSULTANT ANÆSTHETIST to hospitals managed by the Fermanagh Hospital Management Committee. The terms and conditions of the appointment will be in accordance with the Authority's application of the Spens Report to Northern Ireland.

Applications should be made on a form which may be obtained (with further particulars) from the Secretary, Northern Ireland Hospitals Authority, Victory Buildings, 44–46, Queen-street, Belfast, and will be received not later than 17th February, 1954.

Hospital Services : Junior Appointments

BROMPTON HOSPITAL, S.W.3. Applications are invited for the post of NON-RESIDENT HOUSE PHYSICIAN for which there are 3 vacancies, for 6 months from 1st April. Duties include work in Outpatient Department and wards. Salary £400 or £450 a year, according to experience.

Applications, stating age, qualifications with dates, nationality and appointments held, together with copies of testimonials, by 6th February, to—

KENNETH A. F. MILES, House Governor.

CENTRAL MIDDLESEX HOSPITAL, Park Royal, N.W.10. RESIDENT HOUSE OFFICER required in Surgical Department. Appointment for 6 months from 1st March.

Applications, with copies of 2 testimonials, to Medical Director by 30th January, 1954.

CENTRAL MIDDLESEX HOSPITAL, Park Royal, N.W.10. RESIDENT HOUSE OFFICER required in General Surgical and Urological Department. Appointment for 6 months from 1st March. Consideration given to pre-registration candidates.

Applications, with copies of 2 testimonials, to Medical Director by 30th January, 1954.

CHARING CROSS HOSPITAL, W.C.2. Full-time GYNÆCOLOGICAL AND OBSTETRIC REGISTRAR (grade: Registrar). Tenable from 15th February, 1954, for 1 year in the first instance with eligibility for re-election.

Application forms from the undersigned to be returned by 5th February, 1954. FRANK HART, Secretary to the Board.

EASTERN HOSPITAL (Fevers), Homerton-grove, London, E.9. Applications for the post of SENIOR HOUSE OFFICER (deduction £130 p.a. for residence) should be sent to Group Secretary, Hackney Hospital, London, E.9, with copies of 3 testimonials. The post is for 1 year in the first instance; duties of successful candidate may include some work in the Chest Unit.

FOREST GATE HOSPITAL, Forest-lane, E.7. Applications are invited for the resident post of HOUSE OFFICER (obstetrics), second or third post. The appointment is for 6 months, commencing 1st March, 1954, and is recognised for the training of candidates for D.Obst.R.C.O.G.

Written applications, together with 2 references, should be received by the Group Secretary, West Ham Group Hospital Management Committee, Stratford, E.15, not later than 6th February, 1954.

GERMAN HOSPITAL, London, E.8. (General—157 Beds.) Applications are invited from registered medical practitioners for the 6 months appointment of HOUSE SURGEON (obstetric and gynæcological) as from 2nd February, and should be sent to the Group Secretary, Hackney Hospital Management Committee, E.9, quoting reference GH/HS.

HOSPITAL OF ST. JOHN AND ST. ELIZABETH, 60, Grove End-road, London, N.W.8. Applications are invited from registered medical practitioners (Male) for the appointment of HOUSE SURGEON to the Midwifery and Gynæcology Departments and to be responsible for the Casualty Department, as a third post at a salary at the rate of £450 p.a., to become vacant on Monday, 8th February, 1954. Appointment will be for a period of 6 months.

Applications should reach the Secretary on or before Tuesday, 2nd February, together with copies of 3 recent testimonials.

HACKNEY HOSPITAL, London, E.9. (General—807 Beds.) Applications are invited for the appointment of OBSTETRIC HOUSE SURGEONS (1 pre-registration second post, 1 third post) for 6 months as from 17th February and 1st April respectively. Posts recognised for M.R.C.O.G.

Apply Group Secretary, Hackney Hospital Management Committee, E.9, by 5th February.

HAMMERSMITH HOSPITAL AND POSTGRADUATE MEDICAL SCHOOL, Ducane-road, London, W.12. Whole-time RESIDENT REGISTRAR (thoracic surgery), required as soon as possible.

Applications stating age, qualifications, experience, names of 2 referees, to Secretary, Board of Governors, by 30th January.

KING EDWARD MEMORIAL HOSPITAL, Ealing, and CLAYPONDS HOSPITAL, SOUTH EALING. SOUTH WEST MIDDLESEX HOSPITAL MANAGEMENT COMMITTEE. HOUSE SURGEON required mainly for E.N.T. duties, but with some general work at King Edward Memorial Hospital and Clayponds Hospital. Resident at Clayponds Hospital. Vacant 1st March, 1954.

Apply in writing, stating age, nationality, qualifications with dates, and previous experience, together with names of 2 referees, to Group Secretary, West Middlesex Hospital, Isleworth, Middlesex, by 2nd February, 1954.

LAMBETH HOSPITAL, S.E.11. South West Metro-POLITAN REGIONAL HOSPITAL BOARD. ANÆSTHETIC REGISTRAR required. D.A. not essential; facilities given for trainees for the Diploma. Canvassing will disqualify, but candidates are not precluded from visiting the Hospital if they so desire.

For forms of application apply (enclosing stamped addressed envelope) to the Secretary, Lambeth Group Hospital Management Committee, Renfrew-road, S.E.11, to whom completed applications should be returned by 6th February, 1954.

LANGTHORNE HOSPITAL, London, E.11. Leytonstone (NO. 10) HOSPITAL GROUP. Applications are invited for the resident post of HOUSE OFFICER (second or third post) in the Group Geriatric Unit at above Hospital. Salary £400–£450 p.a., less £100 p.a. in respect of residential amenities. The post offers excellent scope for persons interested in this specialty as the most modern methods of geriatric treatment are employed, supervised by a Consultant Geriatrician, with full Consultant Services in other branches.

Application forms may be obtained from the Senior Medical Officer, Langthorne Hospital, London, E.11, to be returned by 6th February, 1954.

LONDON CHEST HOSPITAL. Hospitals for Diseases OF THE CHEST. 2 vacancies occur 1st April, 1954, for RESIDENT HOUSE PHYSICIAN. Appointments for 6 months, 4 in London 2 at the Country Branch, near Letchworth, and posts are graded as House Officer. Duties include work in the Outpatient Department and Refill Clinic as well as in wards.

Applications, stating age, qualifications with dates, and previous appointments held, with copies of 3 testimonials, should reach the undersigned not later than 12th February.

THOMAS BROWN, House Governor.

London Chest Hospital, E.2.

METROPOLITAN HOSPITAL, Kingsland-road, London, E.8. (General—147 Beds.) CENTRAL GROUP HOSPITAL MANAGEMENT COMMITTEE. Applications are invited from registered medical practitioners for the post of SENIOR HOUSE OFFICER (casualty). Salary £670 p.a., less £130 p.a. residential charges.

Applications, stating age, nationality, qualifications and experience, together with 3 testimonials, to be sent to the Hospital Secretary immediately.

MOTHERS' HOSPITAL (Salvation Army), Clapton, E.5. (Maternity—110 Beds.) Applications are invited from registered medical practitioners for the following House Officer posts:—

(*a*) RESIDENT OBSTETRIC HOUSE SURGEON (2 vacancies from 1st March).

(*b*) RESIDENT OBSTETRIC HOUSE SURGEON (vacant 1st May).

The posts are recognised for the M.R.C.O.G. and candidates should have held resident medical or surgical posts.

Apply, Group Secretary Hackney Hospital Management Committee, stating for which appointment application is made.

MOORFIELDS, WESTMINSTER AND CENTRAL EYE HOSPITAL, High Holborn, London, W.C.1. Applications are invited from Male practitioners for the post of RESIDENT SURGICAL OFFICER (Registrar grade). The successful candidate will be required to take up his duties on 1st April, 1954, and if recommended by the Medical Committee will be eligible for appointment as Senior Resident Surgical Officer for a period of 6 months from 1st April, 1955, making a total period of service of 18 months. Experience in ophthalmology is essential. Candidates are required to call upon the Consultant staff at the Westminster Branch.

Forms of application are obtainable from the undersigned, to whom they should be returned, with copies of not more than 3 testimonials, by 19th February, 1954.

J. P. HEMING, Secretary.

NELSON HOSPITAL, Kingston-road, Merton, S.W.20. ST. HELIER GROUP HOSPITAL MANAGEMENT COMMITTEE. Applications are invited from registered medical practitioners for appointment of RESIDENT HOUSE SURGEON, vacant early February. Salary £350–£450 p.a. according to experience. Post recognised for F.R.C.S.

Applications, stating age, experience and qualifications, with copies of 2 testimonials and the name of 1 referee, should be sent to the Group Secretary, St. Helier Hospital, Carshalton, Surrey.

PADDINGTON GREEN CHILDREN'S HOSPITAL, W.2. (ST. MARY'S HOSPITAL.) Applications are invited for the post of CASUALTY OFFICER. Post-registration appointment, House Officer grade, tenable for 6 months, as from 1st April, 1954.

Applications, stating age, nationality, qualifications with dates, and experience, with copies of 3 recent testimonials, should reach the Secretary not later than 6th February, 1954.

NATIONAL HOSPITALS FOR NERVOUS DISEASES. Applications are invited from registered medical practitioners for the appointment of HOUSE PHYSICIAN at The National Hospital, Queen-square, W.C.1. This post carries the grade of Registrar. The appointment will be for 1 year and will be renewed in exceptional circumstances.

Applications with names of 3 referees to be sent to the undersigned not later than 13th February, 1954.

H. EWART MITCHELL, Secretary.

The National Hospital, Queen-square, W.C.1.

NATIONAL HOSPITALS FOR NERVOUS DISEASES. Applications are invited from registered medical practitioners for the appointment of HOUSE SURGEON at The National Hospital, Queen-square, W.C.1. This post carries the grade of Registrar.

Applications, giving the names of 3 referees, to be sent to the undersigned not later than 3rd February, 1954.

H. EWART MITCHELL, Secretary.

The National Hospital, Queen-square, W.C.1.

ROYAL EYE HOSPITAL, S.E.1. King's College Hospital GROUP. Applications are invited for 2 posts of RESIDENT SENIOR HOUSE OFFICER starting on 1st April, 1954.

Applications, with copies of recent testimonials, should be made to the Secretary, The Royal Eye Hospital, St. George's-circus, S.E.1 by 16th February, 1954.

ROYAL FREE HOSPITAL, W.C.1. Applications are invited from registered medical practitioners for the post of SENIOR CASUALTY OFFICER at the Royal Free Hospital, Gray's Inn-road, W.C.1. The appointment is full-time, resident, for 6 months, duties to commence on 1st April, 1954. Salary and conditions of service in accordance with those laid down by the Ministry of Health for Senior House Officers.

Application forms may be obtained from the Secretary to the Board of Governors, Royal Free Hospital, Gray's Inn-road, W.C.1, to whom they should be returned not later than 4th February, 1954.

ROYAL LONDON HOMŒOPATHIC HOSPITAL, Great Ormond-street and Queen-square, W.C.1. Applications are invited from registered medical practitioners for the appointment of HOUSE PHYSICIAN, vacant 1st March, 1954. 6 months appointment. Salary on National Health Service scale. Candidates will be required to attend for interview.

Applications, stating age, and full particulars, to Secretary.

ROYAL NORTHERN HOSPITAL, Holloway, N.7. Appli-cations are invited for the post of SENIOR HOUSE OFFICER (orthopædics), vacant 15th February, 1954. Occasional casualty duties involved. Recognised for F.R.C.S.

Applications, stating age, qualifications and experience, with copies of recent testimonials, to be sent to the Hospital Secretary by 6th February, 1954.

SOUTH LONDON HOSPITAL FOR WOMEN AND CHILDREN, Clapham Common, S.W.4. Applications are invited from registered Female medical practitioners for the post of Full-time OBSTETRIC AND GYNÆCOLOGICAL REGISTRAR which will become vacant on 24th April, 1954. The appointment is normally for 2 years, but is subject to review at the end of the first year. Canvassing will disqualify but candidates are not precluded from visiting the Hospital if they so desire.

For form of application apply (enclosing stamped addressed envelope) to the Secretary, Lambeth Group Hospital Management Committee, to whom completed applications should be returned not later than 13th February, 1954.

ST. JOHN'S HOSPITAL FOR DISEASES OF THE SKIN, Lisle-street, Leicester-square, London, W.C.2. Applications are invited for the post of RESIDENT SENIOR HOUSE OFFICER for Inpatient Department.

Inquiries and applications, with names of 2 referees, by 30th January to Secretary.

ST. NICHOLAS HOSPITAL, Tewson-road, Plumstead, S.E.18. SENIOR HOUSE OFFICER (general surgery), vacant now. 6 months appointment in the first instance. Salary £670 p.a., less £150 p.a. for residence.

Apply to Group Secretary, Memorial Hospital, Woolwich, S.E.18.

ST. NICHOLAS HOSPITAL, Tewson-road, Plumstead, S.E.18. HOUSE SURGEON (gynæcology and obstetrics), vacant 1st March, 1954. Recognised for M.R.C.O.G. and D.Obst.R.C.O.G. 6 months appointment in first instance. Salary £450 p.a., less £100 p.a. for residence.

Apply to Group Secretary, Memorial Hospital, Woolwich, S.E.18.

ST. MARY'S HOSPITAL, W.2. Applications are invited from suitably qualified practitioners for the post of CASUALTY SURGEON (non-resident). Candidates must have held an appointment as House Surgeon at this Hospital or at another general hospital approved by the Board of Governors. The appointment is for a first period of 6 months, with effect from 1st March, 1954; remuneration at the rate of £670 p.a.—i.e., graded Senior House Officer.

Applications, stating nationality, date of birth, permanent address, qualifications, with dates and details of present and previous appointments, together with the names and addresses of 3 referees, should reach ALAN POWDITCH, House Governor, not later than 3rd February, 1954.

ST. MARY'S HOSPITAL, W.2. Applications are invited for the post of Part-time OUTPATIENT SURGICAL ASSISTANT (graded Senior House Officer) for 1 notional half-day per week—i.e., Wednesday, A.M. The appointment will be for a first period of 12 months and the successful candidate will be required to commence duties as soon as possible.

Applications, stating nationality, date of birth, permanent address, qualifications, with dates and details of previous and present appointments, together with the names and addresses of 3 referees, should reach ALAN POWDITCH, House Governor not later than 3rd February, 1954.

ST. MARY'S HOSPITAL, W.2. Applications are invited for a Part-time REGISTRAR to the E.N.T. Department for 2 notional half-days per week (Monday and Thursday mornings), with the possibility of an additional 2 notional half-days per week at the Princess Louise (Kensington) Hospital for Children after 9th June, 1954. The successful candidate will be required to take up his duties at St. Mary's Hospital as soon as possible.

Applications, stating nationality, date of birth, permanent address, qualifications, with dates and details of previous and present appointments, together with the names and addresses of 3 referees, should reach ALAN POWDITCH, House Governor, not later than 10th February, 1954.

ST. STEPHEN'S HOSPITAL, Fulham-road, S.W.10. OBSTETRIC AND GYNÆCOLOGICAL HOUSE SURGEON (resident). This post is recognised for the D.Obst.R.C.O.G.

Applications, naming 2 referees, to the Medical Superintendent.

ST. STEPHEN'S HOSPITAL, Fulham-road, S.W.10. HOUSE SURGEON (general surgery), resident. Pre-registration post. This post is recognised for the F.R.C.S.

Applications, naming 2 referees, to the Medical Superintendent.

ST. THOMAS'S HOSPITAL, London, S.E.1. Registrar to the Skin Department for a period of 1 year in the first instance.

Applications, including names and addresses of 2 referees, to the Clerk of the Governors by 31st January, 1954.

ST. THOMAS'S HOSPITAL, London, S.E.1. Medical REGISTRAR for a period of 1 year in the first instance.

Applications, including names and addresses of 2 referees, to the Clerk of the Governors by 31st January, 1954.

ST. THOMAS'S HOSPITAL, London, S.E.1. Surgical REGISTRAR, for a period of 1 year in the first instance.

Applications, including names and addresses of 2 referees, to the Clerk of the Governors by 31st January, 1954.

ST. THOMAS'S HOSPITAL, London, S.E.1. Registrar to the E.N.T. Department, for a period of 1 year in the first instance.

Applications, including names and addresses of 2 referees, to the Clerk of the Governors by 31st January, 1954.

THE HOSPITAL FOR SICK CHILDREN, Great Ormond-street, London, W.C.1. There will be a vacancy for a HOUSE PHYSICIAN (Senior House Officer) to the Neurological and Neurosurgical Department on 1st April, 1954.

Further particulars and form of application, which must be returned not later than Saturday, 6th February, 1954, may be obtained from the undersigned.

H. F. RUTHERFORD, House Governor and Secretary.

THE HOSPITAL FOR SICK CHILDREN, Great Ormond-street, London, W.C.1. There is a vacancy for a RESIDENT ASSISTANT PHYSICIAN (grade, Senior Registrar).

Full particulars and form of application, which must be returned not later than Monday, 8th February, 1954, are obtainable from the undersigned.

H. F. RUTHERFORD, House Governor and Secretary.

WANSTEAD HOSPITAL, Wanstead, E.11. Applications are invited for the post, now vacant, of CASUALTY OFFICER (graded as Senior House Officer). Salary £670 p.a., with a deduction of £120 p.a. for board, lodging, &c.

Applications, giving full particulars, together with copies of 2 recent testimonials, should be sent immediately to the Secretary, Forest Group Hospital Management Committee, Langthorne-road, E.11.

WEST LONDON HOSPITAL, Hammersmith-road, W.6. RESIDENT CASUALTY OFFICER required 1st March. Salary £670 p.a.

Applications, stating age, qualifications, experience, copies of 2 recent testimonials, to Secretary by 30th January.

WEST LONDON HOSPITAL, Hammersmith-road, W.6. Whole-time SENIOR REGISTRAR (general surgery) (transitional post—see *British Medical Journal*, 23rd May, 1953, Supplement, page 243) required for 1 year from 10th May.

Applications, stating age, qualifications, experience, names of 2 referees, to Secretary, Board of Governors, Hammersmith, West London, and St. Mark's Hospitals, Ducane-road, London, W.12, by 6th February.

WESTERN HOSPITAL, Seagrave-road, Fulham, S.W.6. SOUTH WEST METROPOLITAN REGIONAL HOSPITAL BOARD. FULHAM AND KENSINGTON HOSPITAL MANAGEMENT COMMITTEE. Applications are invited for appointments as REGISTRARS (infectious diseases), 2 positions at above Hospital. 1 post vacant immediately, the other 24th March, 1954. Candidates may visit the Hospital by arrangement with the Physician-Superintendent.

Applications (5 copies are required to be completed) to be submitted by 5th February, 1954, on forms obtainable from the Group Secretary (L164), Fulham and Kensington Hospital Management Committee, 5, Collingham-gardens, London, S.W.5.

WHIPPS CROSS HOSPITAL, E.11. Leytonstone (No. 10) HOSPITAL GROUP. Applications are invited for the post of SENIOR HOUSE OFFICER (E.N.T./Ophthalmology Departments) at above Hospital.

Application forms may be obtained from the Hospital Secretary, Whipps Cross Hospital, Whipps Cross-road, E.11, to be returned by 6th February, 1954.

BARNSTAPLE. NORTH DEVON INFIRMARY. (110 Beds.) HOUSE SURGEON (not pre-registration). Post vacant immediately.

Applications to Group Secretary, North Devon Hospital Management Committee, 19, Alexandra-road, Barnstaple.

BATH. ROYAL UNITED HOSPITAL. Applications are invited from medical practitioners for post of HOUSE PHYSICIAN (pediatrics) at above Hospital. Hospital recognised for D.C.H. qualifications.

Applications, stating age, qualifications and experience, with 3 testimonials, to be forwarded to—

J. LAWRENCE MEARS, Secretary,
Bath Hospital Management Committee.
Manor Hospital, Bath.

ABERDEEN. WOODEND GENERAL HOSPITAL. Applications are invited for the resident appointment of a HOUSE OFFICER for the tuberculosis wards at the above Hospital, to commence duty immediately. The appointment is subject to the conditions of service issued by the Department of Health for Scotland.

Applications should be lodged with the Secretary, Aberdeen General Hospitals, 62, Queen's-road, Aberdeen.

ABERYSTWYTH. GENERAL HOSPITAL. (Hospital is recognised for F.R.C.S. examination.) MID-WALES HOSPITAL MANAGEMENT COMMITTEE. Applications are invited from registered medical practitioners for the resident post of SENIOR HOUSE OFFICER at the above Hospital.

Full particulars, stating age, qualifications and experience, should be addressed to—

J. PRICE THOMAS, Secretary,
Mid-Wales Hospital Management Committee.
General Hospital, Aberystwyth.

ABERYSTWYTH. GENERAL HOSPITAL. (Hospital recognised for F.R.C.S. examination.) MID-WALES HOSPITAL MANAGEMENT COMMITTEE. Applications are invited from newly qualified medical practitioners seeking pre-registration posts under the Medical Act, 1950, for the resident post of HOUSE SURGEON at the above Hospital. Busy General Hospital. Salary on national scale less deduction for board and lodging.

Applications, with 2 testimonials, to the Group Secretary, Mid-Wales Hospital Management Committee, General Hospital, Aberystwyth, immediately.

ASHFORD HOSPITAL, Ashford, Middlesex. Staines GROUP HOSPITAL MANAGEMENT COMMITTEE. 2 RESIDENT HOUSE SURGEONS (Male) required at above Hospital for general surgical duties. 6 months appointments 1 vacant on 1st March, and the other on 8th March. Preference given to pre-registration candidates.

Applications, stating age, qualifications and experience, with copies of up to 3 recent testimonials, to Medical Director of Hospital by 6th February, 1954.

AYLESBURY. ROYAL BUCKINGHAMSHIRE AND ASSOCIATED HOSPITALS MANAGEMENT COMMITTEE, AYLESBURY, BUCKS. Applications are invited for the following appointments :—

SENIOR HOUSE OFFICER (anæsthetics) to the Department of Anæsthetics for the Aylesbury Group of hospitals. The appointment is recognised under the D.A. regulations, and application has been made to the Faculty of Anæsthetists for recognition under the conditions for the F.F.A.R.C.S. examination. Vacant now. Salary £670 p.a. with a deduction of £140 p.a. if resident.

Applications, giving full details of experience and 2 names for reference, should be forwarded to the Secretary to the Management Committee, 9, Bicester-road, Aylesbury.

Royal Buckinghamshire Hospital

SENIOR HOUSE OFFICER for Accident and Orthopædic Department, vacant now. Duties include charge of Casualty Department together with those of Senior Resident. Accommodation for a married person can also be provided from 1st April, 1954. Salary £670 p.a., less £140 p.a. for residence, &c.

SENIOR HOUSE OFFICER for Accident and Orthopædic Department, which is centred on this Hospital and comprises 48 Beds, vacant now.

Both posts are recognised for F.R.C.S.

HOUSE SURGEON to the Department of Ophthalmology which is centred on this Hospital and which conducts work at peripheral clinics. Vacant 17th February. Post is recognised for D.O. and duties will include some children's surgery.

Applications, with 2 testimonials, to Secretary-Superintendent as soon as possible.

Stoke Mandeville Hospital

SENIOR HOUSE OFFICER in Department of Neurology of the United Oxford Hospitals for duties at Stoke Mandeville Hospital. Vacant now.

JUNIOR HOSPITAL MEDICAL OFFICER for National Spinal Injuries Centre. Neurological or surgical experience desirable.

Applications, with copies of 2 recent testimonials, to the Administrative Officer, Stoke Mandeville Hospital.

BEXHILL HOSPITAL, Bexhill, Sussex. (62 Beds.) 2 HOUSE SURGEONS. Posts now vacant. A small modern hospital on the South Coast, considerable acute surgical work and busy Outpatient Department, excellent all-round experience. National scale of salary.

Apply to Hospital Administrator.

BIRMINGHAM ACCIDENT HOSPITAL AND REHABILI-TATION CENTRE, Bath-row, BIRMINGHAM, 15. (215 Beds.) Applications are invited from registered medical practitioners for post of RESIDENT ANÆSTHETIST (Senior House Officer grade) which falls vacant on 1st February, 1954. Salary at rate of £670 p.a., less deduction of £140 p.a. in respect of residential emoluments. Training will be given by Consultant staff in modern anæsthetic methods. Previous experience in anæsthetics not essential.

Applications, with copies of 2 testimonials or names of 2 referees, should be sent to Administrator as soon as possible.

BIRMINGHAM ACCIDENT HOSPITAL AND REHABILI-TATION CENTRE, Bath-row, BIRMINGHAM, 15. (215 Beds.) HOUSE SURGEONS (Male or Female). 2 posts vacant in February, 1 post vacant in March. Recognised for F.R.C.S. The appointments will be for a period of 6 months, of which 2 may be spent in the Burns Unit (Medical Research Council). The Hospital is the largest Traumatic Unit in the country, and treats 50,000 new patients each year. Posts are open to registered practitioners and offer ample opportunity for practical experience in the management of all types of injury and teaching by the Consultant staff.

Applications, with copies of recent testimonials or names of 2 referees, to the Administrator.

BIRMINGHAM, 9. LITTLE BROMWICH HOSPITAL. Applications are invited from registered medical practitioners for the appointment of PÆDIATRIC HOUSE PHYSICIAN (Male or Female). Post vacant 1st March, 1954. This post, which is recognised for the D.C.H., includes work in the pædiatric and infectious diseases wards and Outpatient Department, and arrangements are made to attend a Neonatal Department and the necessary clinics. Salary £350–£450 p.a. according to experience.

Applications, stating age, qualifications, and experience, with copies of 2 testimonials, to the Physician-Superintendent.

BIRMINGHAM REGIONAL HOSPITAL BOARD. United BIRMINGHAM HOSPITALS. Junior appointment of SENIOR REGISTRAR in Thoracic Surgery; duties divided equally between both Boards—Regional Thoracic Surgery Service and United Birmingham Hospitals. Wide experience general surgery and higher qualification required. Preference to candidates with experience in thoracic surgery.

Applications (15 copies), naming 3 referees, to Secretary, Birmingham Regional Hospital Board, 10, Augustus-road, Birmingham, 15, before 8th February, 1954.

BIRMINGHAM, 29. SELLY OAK HOSPITAL. (1059 Beds.) Applications invited for the post of CASUALTY OFFICER (Senior House Officer), resident or non-resident. Recognised for F.R.C.S.

Applications, giving qualifications, experience and age, with copies of 3 recent testimonials, to the Medical Superintendent.

BIRMINGHAM. SOLIHULL HOSPITAL, Lode-lane, SOLIHULL. RESIDENT SURGICAL OFFICER (Senior House Officer). Good experience in general surgery and 5 other Resident Medical staff.

Applications, stating age, nationality, qualifications and experience, together with copies of testimonials or names of referees, to the Medical Superintendent.

BIRMINGHAM. THE UNITED BIRMINGHAM HOSPITALS. THE CHILDREN'S HOSPITAL. Applications are invited for the appointment of SURGICAL REGISTRAR (non-resident) in the grade of Registrar, vacant 1st April, 1954. Preference will be given to candidates holding a higher qualification. Residence in the Hospital will be required when the Resident Surgical Officer is absent.

Forms of application may be obtained from the House Governor, The Children's Hospital, Ladywood-road, Birmingham, 16, and should be returned not later than 13th February, 1954. G. A. PHALP, Secretary to the Board of Governors.

BIRMINGHAM. THE UNITED BIRMINGHAM HOSPITALS. THE BIRMINGHAM AND MIDLAND HOSPITAL FOR WOMEN, Showell Green-lane, SPARKHILL, BIRMINGHAM, 11. Applications are invited from registered practitioners for the post of RESIDENT GYNÆCOLOGICAL HOUSE SURGEON for duty with the Professorial Unit, vacant 1st April, 1954. The appointment is recognised for the M.R.C.O.G.

Application forms obtainable from the House Governor at the above address, to be returned not later than 1st February, 1954. G. A. PHALP, Secretary.

BISHOP'S STORTFORD AND DISTRICT HOSPITAL, Rye-street, BISHOP'S STORTFORD, HERTS. (67 Beds—medical, surgical, and maternity. Midway between London and Cambridge. Main Line Railway from Liverpool Street.) Applications are invited from registered medical practitioners for a RESIDENT HOUSE OFFICER (first or second post held). Salary £350–£400 p.a., less £100 p.a. residential emoluments. Appointment to commence as soon as possible.

Applications, stating age, nationality, qualifications, and experience, with copies of recent testimonials or the names of referees, should be sent to the Hospital Secretary, Haymeads Hospital, Bishop's Stortford, Herts.

BISHOP'S STORTFORD, HERTS. HAYMEADS HOSPITAL. (400 Beds. Midway between London and Cambridge. Main Line Railway from Liverpool Street.) Applications are invited for the post of SENIOR HOUSE OFFICER (medical) for duties mainly in the Tuberculosis Unit of 43 male and 23 female beds. Salary £670 p.a., less £130 p.a. in respect of residential emoluments provided. Appointments to commence as soon as possible.

Applications, stating age, nationality, qualifications, and experience, with copies of recent testimonials or the names of referees, to the Hospital Secretary.

BROMSGROVE. REGIONAL THORACIC SURGICAL CENTRE: HILL TOP HOSPITAL. MID-WORCESTERSHIRE HOSPITAL MANAGEMENT COMMITTEE. HOUSE OFFICER. Post vacant 1st March. 1954. All aspects of thoracic surgery dealt with, including cardiac, pulmonary, alimentary and children's diseases.

Applications, with the names of 3 referees, to the Group Secretary, Mid-Worcestershire Hospital Management Committee, Birmingham-road, Bromsgrove.

BLACKBURN AND DISTRICT HOSPITAL MANAGEMENT COMMITTEE. Applications invited for the following 3 HOUSE SURGEON posts:—

Blackburn Royal Infirmary (262 acute beds).
Accrington Victoria Hospital (112 acute beds).
Queen's Park Hospital, Blackburn (644 general, including 234 acute, beds).

Approved for pre-registration purposes. Recognised for F.R.C.S.

Apply to the Secretary, Hospital Management Committee Office, Royal Infirmary, Blackburn.

BLACKBURN AND DISTRICT HOSPITAL MANAGEMENT COMMITTEE. REGISTRAR (anæsthetics) required to take up duty 1st February, 1954. Resident post. Married quarters available if desired. Duties mainly at Blackburn Royal Infirmary with sessions at Accrington Victoria Hospital and Queen's Park Hospital, Blackburn, as arranged by Consultant-in-charge. Post recognised for D.A. and F.F.A.R.C.S.

Apply to Secretary, Hospital Management Committee Office, Royal Infirmary, Blackburn.

BLACKPOOL AND FYLDE HOSPITAL MANAGEMENT COMMITTEE. CLINICAL ASSISTANT (resident), Department of Anæsthetics. 6 sessions weekly (£1050 p.a.). Main duties at Victoria Hospital, Blackpool (344 Beds). Post vacant end of March.

Apply with references to the Group Secretary, Victoria Hospital, Blackpool.

BOURNEMOUTH AND EAST DORSET HOSPITAL MANAGEMENT COMMITTEE. SOUTH WEST METROPOLITAN REGIONAL HOSPITAL BOARD. Applications are invited for the appointment of REGISTRAR in Orthopædic Surgery for the above Hospital Group consisting of 18 hospitals with 1548 Beds. The orthopædic work is conducted mainly at the 2 major hospitals of the Group, viz., Royal Victoria Hospital, Bournemouth, and Poole General Hospital, with 100 orthopædic beds and large Outpatient Departments covering both traumatic and non-traumatic orthopædics in all branches in children and adults.

Forms of application, obtainable from the Group Secretary, Hospital Management Committee Office, Royal Victoria Hospital, Bournemouth, should be returned to him, duly completed, within 14 days of the appearance of this advertisement.

BOURNEMOUTH. ROYAL VICTORIA HOSPITAL, Shelley-road. (492 Beds.) BOURNEMOUTH AND EAST DORSET HOSPITAL MANAGEMENT COMMITTEE. RESIDENT ANÆSTHETIST (Senior House Officer) required immediately. The post is recognised for the D.A. and F.F.A.R.C.S. and is tenable for 12 months. Experience in chest anæsthesia available.

Applications to the Deputy Hospital Secretary at the Hospital.

BOURNEMOUTH. ROYAL VICTORIA HOSPITAL. BOURNEMOUTH AND EAST DORSET HOSPITAL MANAGEMENT COMMITTEE. SOUTH WEST METROPOLITAN REGIONAL HOSPITAL BOARD. Applications are invited for the appointment of REGISTRAR in Pathology (non-resident) at the above Hospital. Duties will be in all branches of pathology and there are full opportunities for wide experience. The post, which is recognised for the Diploma in Pathology, becomes vacant on 31st March, 1954, and is tenable for 1 year. Applicants may visit the laboratory by local arrangement.

Forms of application, obtainable from the Group Secretary, Hospital Management Committee Office, Royal Victoria Hospital, Gloucester-road, Boscombe, Bournemouth, should be returned to him duly completed, within 14 days of the appearance of this advertisement.

BOURNEMOUTH. ROYAL VICTORIA HOSPITAL. (492 Beds.) BOURNEMOUTH AND EAST DORSET HOSPITAL MANAGEMENT COMMITTEE. Applications are invited for the post of HOUSE SURGEON for General and Thoracic Surgery, vacant now. The appointment is recognised for the F.R.C.S. examination and for pre-registration purposes.

Applications to the Deputy Hospital Secretary, Royal Victoria Hospital, Shelley-road, Bournemouth.

BOURNEMOUTH. ROYAL VICTORIA HOSPITAL. (492 Beds.) BOURNEMOUTH AND EAST DORSET HOSPITAL MANAGEMENT COMMITTEE. Applications are invited for the immediate appointment of RESIDENT SENIOR HOUSE OFFICER (orthopædic and casualty combined). The post is recognised for the F.R.C.S. examination and is tenable for 1 year.

Applications to the Deputy Hospital Secretary.

BOURNEMOUTH. ROYAL VICTORIA HOSPITAL. BOURNEMOUTH AND EAST DORSET HOSPITAL MANAGEMENT COMMITTEE. Applications are invited for the post of HOUSE SURGEON for General Surgery, vacant immediately. The appointment is recognised for the F.R.C.S. examination and for pre-registration purposes.

Applications to the Deputy Hospital Secretary at the Hospital.

BRAINTREE, ESSEX. BLACK NOTLEY HOSPITAL. (544 Beds.) Applications invited for post of HOUSE OFFICER (orthopædic surgery). (First, second, or third post.) Post tenable for 6 months and is recognised under F.R.C.S. regulations. Salary in accordance with the terms of service issued by the Ministry of Health, plus £50 p.a.

Applications, with copies of 3 testimonials, should be forwarded to the Group Secretary, Colchester Hospital Management Committee, 14, Pope's-lane, Colchester, Essex.

BRAINTREE, ESSEX. BLACK NOTLEY HOSPITAL. SENIOR HOUSE OFFICER for Surgical Tuberculosis Department at above Hospital. Duties mainly concerned with genito-urinary tuberculosis, including 1 day a week at the London Hospital Genito-Urinary Department.

Applications, with copies of 3 testimonials, should be forwarded to the Group Secretary, Colchester Hospital Management Committee, 14, Pope's-lane, Colchester, Essex.

BRISTOL. STAPLETON HOSPITAL. (750 Beds.) JUNIOR HOSPITAL MEDICAL OFFICER. Salary £700–£50–£1000. Furnished accommodation available together with board and laundry, for which a charge of £120 p.a. is made. If a married man is appointed a reasonable charge will be made in respect of the wife. A self-contained unfurnished flat adjacent to the Hospital at an economical rent will shortly be available for medical staff. The Hospital caters for acute and chronic illness in the older age groups. All ancillary services available. Consultant staff visit regularly and there is ample time for postgraduate study.

Applications, stating age, nationality, whether married or single, experience, qualifications, and names and addresses of 2 referees, to be sent to the Group Secretary, Stapleton Hospital Management Committee, 200, Manor-road, Fishponds, Bristol, within 14 days of the appearance of this advertisement.

BRADFORD CHILDREN'S HOSPITAL. (102 Beds.) HOUSE OFFICER (Female), vacant 1st February. Salary £350–£450 p.a., less £100 p.a. residential emoluments. Recognised for D.C.H.

Applications, stating age, nationality, qualifications and experience, with copy testimonials, to Secretary, Bradford Royal Infirmary.

BRADFORD ROYAL INFIRMARY. House Surgeon (general and urology), vacant 1st March. Salary £350–£450 p.a., less £100 p.a. residential emoluments.

Applications, stating age, nationality, qualifications and experience, with copy testimonials, to Secretary.

BRADFORD ROYAL INFIRMARY. Orthopædic House SURGEON/CASUALTY OFFICER, vacant 1st February. Salary £350–£450 p.a., less £100 p.a. residential emoluments.

Applications, stating age, nationality, qualifications and experience, with copy testimonials, to Secretary.

BRADFORD. ST. LUKE'S HOSPITAL.

HOUSE SURGEON (general), vacant now. Post recognised for pre-registration purposes.

HOUSE OFFICER (anæsthetics), vacant now.

Salary for either of above posts £350–£450 p.a., less £100 p.a. residential emoluments.

Applications, stating age, nationality, qualifications and experience, with copy testimonials, to Secretary, Bradford Royal Infirmary.

BURTON-ON-TRENT GENERAL INFIRMARY. (240 acute beds.) Applications are invited for :—

(*a*) HOUSE SURGEON (General Surgical Unit).

(*b*) HOUSE SURGEON (General Surgical and Gynæcological Unit).

Designated for Pre-registration Service. The Hospital is recognised for the F.R.C.S.

Applications, with full details, naming 2 referees, should be sent to the Secretary.

BURTON-ON-TRENT GENERAL INFIRMARY. (240 acute beds.) Locum CASUALTY OFFICER required immediately. Remuneration at the rate of £16 per week, with a deduction for residence.

Apply Secretary.

BURTON-ON-TRENT GENERAL INFIRMARY. (240 acute beds.) JUNIOR HOSPITAL MEDICAL OFFICER required for Casualty and Orthopædic Departments.

Applications, with full details, naming 2 referees, to Secretary.

BURY AND ROSSENDALE HOSPITAL MANAGEMENT COMMITTEE. BURY GENERAL HOSPITAL. There is a vacancy for SENIOR HOUSE OFFICER (surgery), resident or non-resident, at the above Hospital. Salary and conditions of service in accordance with national rules.

Apply to H. WILKINSON, Group Secretary.

BURY AND ROSSENDALE HOSPITAL MANAGEMENT COMMITTEE. SENIOR HOUSE OFFICER (medical), Rossendale General Hospital (resident or non-resident).

Applications, giving names of 2 referees, should be made to—
H. WILKINSON, Esq., Group Secretary.
Bury General Hospital, Bury, Lancs.

CAERPHILLY DISTRICT HOSPITAL. (Married quarters available.) 2 SENIOR HOUSE OFFICERS (surgery) required at the above Hospital—6 miles from Cardiff (144 Beds for acute general surgery, orthopædics, E.N.T., ophthalmology and gynæcology ; 26 Beds for general medicine, busy Outpatient, Casualty and Pathology Departments).

Apply, with full particulars, to the Group Secretary, Hospital Management Committee, St. Martin's-road, Caerphilly, near Cardiff.

CAMBRIDGE. FULBOURN HOSPITAL. Senior House OFFICER (resident or non-resident). Previous psychiatric experience not required. This Hospital of 960 Beds is linked with the Cambridge University Department of Psychology and Addenbrooke's Hospital, and provides a basic psychiatric training leading to the D.P.M.

Applications, stating age, qualifications and experience, with names of 2 referees, should be sent to—
Dr. D. H. CLARK, Medical Superintendent.
Fulbourn Hospital, near Cambridge.

CARSHALTON, SURREY. ST. HELIER HOSPITAL. ST. HELIER GROUP HOSPITAL MANAGEMENT COMMITTEE. Applications are invited for the post of SENIOR HOUSE SURGEON (Senior House Officer) to 1 of the 2 general surgical units comprising 70 Beds. Vacant early March.

Applications, stating age, qualifications and experience, with copies of recent testimonials and the name of 1 referee, should be sent to the Group Secretary, St. Helier Hospital, Carshalton, Surrey.

CARSHALTON, SURREY. ST. HELIER HOSPITAL. ST. HELIER GROUP HOSPITAL MANAGEMENT COMMITTEE. Applications are invited from registered and provisionally registered medical practitioners for the post of HOUSE SURGEON, vacant middle of March.

Applications, stating age, qualifications and experience, with copies of 2 testimonials, and the names of 2 referees, should be sent as soon as possible to the Group Secretary at the above address.

CARSHALTON, SURREY. QUEEN MARY'S HOS-PITAL FOR CHILDREN. Required, HOUSE SURGEON (resident) for 6 months, for general surgical duties and for duties in E.N.T. Department. Applicants must have completed 12 months Pre-registration Service. Salary according to national scale.

Applications, stating age, qualifications and experience, with copies of 3 recent testimonials should be sent to Secretary by 6th February, 1954.

CHESTERFIELD ROYAL HOSPITAL. (324 Beds. Recognised for the D.A.) SHEFFIELD REGIONAL HOSPITAL BOARD. Whole-time RESIDENT REGISTRAR (anæsthetics) with duties when required at Scarsdale Hospital and Walton Hospital. Experience in all types of anæsthesia, except neurosurgery, can be obtained in this Group of hospitals. Appointment for 1 year in first instance.

Apply to Secretary, Sheffield Regional Hospital Board, Old Fulwood-road, Sheffield, by 1st February, 1954, giving age, nationality, qualifications, present and previous appointments with dates, naming 3 referees.

CHELMSFORD AND ESSEX HOSPITAL. (163 Beds.) Applications are invited for the post of RESIDENT HOUSE SURGEON (pre-registration post). The post will become vacant on 8th February and offers good surgical experience and is recognised for the F.R.C.S.

Applications, together with 2 recent testimonials, to the Secretary, Chelmsford Hospital Management Committee, London-road, Chelmsford.

CHELTENHAM GENERAL HOSPITAL. (220 Beds.) Recognised pre-registration appointment. CHELTENHAM GROUP HOSPITAL MANAGEMENT COMMITTEE. Applications are invited for the position of HOUSE SURGEON. Salary at the rate of £350, £400, or £450 p.a., less £100 residential emoluments.

Applications, stating age, qualifications, experience, and enclosing copy testimonials, should be sent to the Secretary, Group Management Committee, General Hospital, Cheltenham.

COLCHESTER. ESSEX COUNTY HOSPITAL. Locum SENIOR REGISTRAR in Radiology required. Salary £22 a week.

Applications, with copies of 3 testimonials, should be sent to the Group Secretary, Colchester Hospital Management Committee, 14, Pope's-lane, Colchester, Essex.

COLCHESTER HOSPITAL MANAGEMENT COM-MITTEE. BLACK NOTLEY HOSPITAL, BRAINTREE, AND ESSEX COUNTY HOSPITAL, COLCHESTER. Applications invited for post of HOUSE SURGEON. First, second, third or pre-registration post, tenable for 6 months from 14th February. Duties to include work in general surgical and gynæcological wards. Salary in accordance with the terms of service issued by the Ministry of Health, plus £50 p.a. Recognised under F.R.C.S. regulations.

Applications, with copies of 3 testimonials, should be forwarded to the Group Secretary, 14, Pope's-lane, Colchester, Essex.

COTTINGHAM, near HULL. CASTLE HILL HOSPITAL. HOUSE SURGEON (Senior House Officer grade) for Major Thoracic Surgery Unit, to work under the supervision of the Consultant Thoracic Surgeon. Unit part of Group incorporating Mass Radiography Unit and full laboratory facilities.

Application forms from Group Secretary, Hull B Hospital Management Committee, De la Pole Hospital, Willerby, E. Yorkshire.

COTTINGHAM, near HULL. RAYWELL SANATORIUM. (48 Beds.) SENIOR HOUSE OFFICER for above Sanatorium to work under the supervision of Consultant Chest Physician. Sanatoria part of Group with Major Thoracic Surgery and Mass Radiography Units and Laboratory facilities.

Application forms from Group Secretary, Hull B Hospital Management Committee, De la Pole Hospital, Willerby, E. Yorkshire.

COVENTRY GROUP 20 HOSPITAL MANAGEMENT COMMITTEE invites applications for the following posts :—

Rugby. Hospitals of St. Cross and St. Luke's

SENIOR HOUSE OFFICER (resident) required 1st February, for General Medical Department (60 Beds and 2 outpatient clinics weekly).

SENIOR HOUSE OFFICER (resident) for General Surgical Department (60 Beds and outpatient clinic).

Rugby. Hospital of St. Cross (168 Beds)

SENIOR HOUSE OFFICER or HOUSE OFFICER (fracture and orthopædic). Recognised for F.R.C.S. and pre-registration.

Rugby. Hospital of St. Cross and St. Mary's Hospital

HOUSE SURGEON for Obstetric (40 Beds) and Gynæcological (12 Beds) Departments, required 10th March.

Nuneaton. Manor Hospital (139 Beds)

RECEIVING ROOM OFFICER required immediately. Salary scale £700–£1000 p.a.

SENIOR HOUSE OFFICER (traumatic and orthopædic) required. Salary £670. Vacant 6th March. Furnished flat available.

Applications to Secretary, Group 20 Hospital Management Committee, Stoney Stanton-road, Coventry.

CROYDON. MAYDAY HOSPITAL. (618 Beds.) House SURGEON (resident) for Fracture and Orthopædic Unit required immediately.

Application forms obtainable from GEORGE A. PAINES, Group Secretary, Hospital Management Committee, General Hospital, Croydon.

DARTFORD HOSPITAL MANAGEMENT COMMITTEE.

SENIOR HOUSE OFFICER (general medicine) at The Southern Hospital.

*HOUSE OFFICER (general medicine) at The Southern Hospital.

*HOUSE SURGEON (general) at Joyce Green Hospital.

*Approved for pre-registration purposes.

Applications, stating age, qualifications, experience, nationality, and the names of 2 referees, for House Officers to the Medical Superintendent of the hospital concerned ; and for Senior House Officers to the Group Secretary, The Bow Arrow Hospital, Dartford.

DERBY. DERBYSHIRE ROYAL INFIRMARY. Senior HOUSE OFFICER (orthopædic), vacant immediately. Recognised for F.R.C.S.

Applications, stating full details, together with copies of 2 recent testimonials, to be sent to Secretary at the Infirmary.

DERBY. DERBYSHIRE ROYAL INFIRMARY. Senior HOUSE OFFICER (casualty), vacant immediately. Recognised for F.R.C.S.

Applications, stating full details, together with copies of 2 testimonials, to be sent to Secretary at the Infirmary.

DEWSBURY. STAINCLIFFE GENERAL HOSPITAL. (314 Beds.) RESIDENT SURGICAL OFFICER (Senior House Officer grade), vacant early in February. The Surgical Unit comprises 66 Beds and the Hospital is recognised for the F.R.C.S.

Applications, giving full details, to the Administrative Officer at the Hospital.

DEWSBURY. THE GENERAL HOSPITAL. (119 Beds.) Applications are invited for the post of SENIOR HOUSE OFFICER (surgery and casualty). Salary £670 p.a., less deduction for board, lodging, &c.

Applications, stating age, qualifications, details of present and previous appointments, together with the names of 2 referees, should be sent immediately to the Administrative Officer, The General Hospital, Dewsbury, Yorks.

DOVER. ROYAL VICTORIA HOSPITAL. Applications are invited for the post of HOUSE SURGEON at the above Hospital. The post is recognised by the Royal College of Surgeons. Salary £350, £400, or £450 a year according to experience. A deduction of £100 a year will be made for residential emoluments.

Applications, stating age, qualifications, and the names and addresses of 2 referees, to the Group Secretary, "Ash-Eton," Radnor Park West, Folkestone.

DOVERCOURT, ESSEX. HARWICH AND DISTRICT HOSPITAL. (30 Beds.) Applications invited for appointment of SENIOR HOUSE OFFICER (Resident Surgical Officer). Post tenable for 1 year. Salary in accordance with the terms of service issued by the Ministry of Health.

Applications, with copies of 3 testimonials, should be forwarded to the Group Secretary, Colchester Hospital Management Committee, 14, Pope's-lane, Colchester, Essex.

DARLINGTON MEMORIAL HOSPITAL. (210 Beds.) DARLINGTON DISTRICT HOSPITAL MANAGEMENT COMMITTEE. Applications are invited for the post of HOUSE SURGEON (resident), which post is recognised for the F.R.C.S. (Eng.). Salary in accordance with national scale.

Apply, giving age and references, to the undersigned forthwith. G. W. BECKWITH, Group Secretary.

EAST ANGLIAN REGIONAL HOSPITAL BOARD. ANÆSTHETIC REGISTRAR, United Norwich Hospitals. Duties at Norfolk and Norwich, West Norwich Hospital, and Jenny Lind Children's Hospital. Post recognised for D.A. and provides wide experience. Single quarters available. Post available on 8th March, 1954.

Detailed applications, including age, and names of 3 referees, to Secretary of Board, 117, Chesterton road, Cambridge, by 1st February, 1954. Candidates invited to visit Hospital by direct arrangement with Hospital Management Committee Secretary, Norfolk and Norwich Hospital.

EAST ANGLIAN REGIONAL HOSPITAL BOARD. REGISTRAR in Mental Deficiency and Child Psychiatry, Little Plumstead Mental Deficiency Colony, near Norwich (900 Beds), large Outpatient Service (including child guidance). Recognised by R.M.P.A. for training in both child psychiatry and mental deficiency. A small flat (furnished or unfurnished) is available in the Hospital. Appointment for 1 year, renewable for second year.

Detailed applications, including age and names of 3 referees, to Secretary of Board, 117, Chesterton-road, Cambridge, by 1st February, 1954. Candidates invited to visit Colony by direct arrangement with Medical Superintendent.

EAST CUMBERLAND HOSPITAL MANAGEMENT COMMITTEE. Applications are invited for the following HOUSE OFFICER appointments for the 6 months period commencing 1st February, 1954 :—

Cumberland Infirmary, Carlisle (340 Beds)

*3—General Surgery.
1—Gynæcology and Obstetrics.
1—Orthopædics.
1—"Specials" (E.N.T. and Eyes).

*2 of the General Surgical posts are designated pre-registration appointments under the Medical Act, 1950.

Applications, with names of 2 refcrees, should be forwarded immediately to the Secretary, East Cumberland Hospital Management Committee, Cumberland Infirmary, Carlisle.

EPPING. ST. MARGARET'S HOSPITAL. (485 Beds.) RESIDENT SENIOR HOUSE OFFICER (surgery) as Casualty Officer and Orthopædic House Surgeon. Vacancy occurring mid-February. Recognised training post for F.R.C.S. Busy general hospital with easy access to London. Salary on national scale, less deduction for board, lodging, &c.

Applications, with copies of 2 testimonials, to the Group Secretary, Epping Group Hospital Management Committee, St. Margaret's Hospital, Epping, Essex, by 29th January, 1954.

EXETER. ROYAL DEVON AND EXETER HOSPITAL. (Bed Complement—320. Staff: 2 Senior Registrars; 5 Senior House Officers; 7 Junior House Officers.) EXETER AND MID-DEVON HOSPITALS MANAGEMENT COMMITTEE. Applications are invited from registered medical practitioners for the appointment of RESIDENT MEDICAL OFFICER (with duties as House Physician to the Neurologist), vacant 22nd February, 1954. The appointment is normally for a period of 12 months. Salary £670, less deduction of £100 for residential emoluments.

Applications, with copies of 2 recent testimonials, should be forwarded to the Hospital Secretary on or before 6th February, 1954.

FOLKESTONE. ROYAL VICTORIA HOSPITAL. Applications are invited for the appointment of HOUSE SURGEON at the above Hospital which is recognised for Pre-registration Service. Salary £350, £400, or £450 a year according to experience, less a deduction of £100 a year for residential emoluments. This post is recognised by the Royal College of Surgeons for the F.R.C.S. examination.

Applications, stating age, qualifications, experience, and the names and addresses of 2 referees, to the Group Secretary, "Ash-Eton," Radnor Park West, Folkestone.

GUILDFORD. ROYAL SURREY COUNTY HOSPITAL. (232 Beds.) HOUSE SURGEON to Orthopædic and Traumatic Unit. The post is tenable for 6 months from 1st February, is recognised for the F.R.C.S. examination, and is open to pre-registration candidates.

Applications, with copies of 3 testimonials, should be sent to the Hospital Secretary as soon as possible.

GUILDFORD. ST. LUKE'S HOSPITAL. Applications are invited for the post of SENIOR HOUSE OFFICER in the Radiotherapy Unit (54 Beds). Treatment of cancer by deep X ray, radium and surgery is carried out in the Unit. The post, which is vacant now, provides excellent experience for a post-graduate working for a higher degree.

Applications, with full details, together with copies of recent testimonials, to the Physician-Superintendent as soon as possible.

GLASGOW, N. FORESTHALL HOSPITAL. (640 hospital beds for long-term sick.) JUNIOR HOSPITAL MEDICAL OFFICERS (2 vacancies). Applicants must have been qualified or 2 years and have had experience as House Officers in general hospitals. The present establishment is for 5 Junior Hospital Medical Officers and they are encouraged to spend part of their time at a nearby teaching hospital to maintain their interest in general medicine. Facilities and supervision are also provided for medical officers wishing to pursue clinical research in preparation for higher degrees. Living-in optional.

Applications, with the names of 3 referees, should be sent to the Administrative Medical Officer, Foresthall, 657, Edgefauld-road, Glasgow, N.

GLASGOW. ROYAL HOSPITAL FOR SICK CHILDREN. Applications are invited for the post of JUNIOR HOUSE OFFICER in the Outpatients' Department of the above Hospital for the term February–August, 1954. This post is not a pre-registration one.

Applications should be sent to the Medical Superintendent, Royal Hospital for Sick Children, Yorkhill, Glasgow, C.3.

HALIFAX. ROYAL HALIFAX INFIRMARY. (301 Beds.) SENIOR HOUSE OFFICER in General Surgery required. Salary £670 p.a., with deduction of £130 p.a. for residence, &c.

Applications to Group Secretary, Royal Halifax Infirmary, Halifax.

HASTINGS. ROYAL EAST SUSSEX HOSPITAL. (150 Beds.) SENIOR HOUSE OFFICER (casualty and orthopædic). Post vacant now. National scale of salary.

Apply to Hospital Administrator.

HASTINGS. ROYAL EAST SUSSEX HOSPITAL. (150 Beds.) HOUSE SURGEON required. Resident, Male or Female. Post vacant now. National scale of salary.

Apply to Hospital Administrator.

HAVERFORDWEST. PEMBROKE COUNTY WAR MEMORIAL HOSPITAL. (151 Beds. Recognised by the Royal College of Surgeons and for Pre-registration Service.) Applications are invited for the post of RESIDENT HOUSE OFFICER (surgical). Salary £350, £400, or £450 p.a., plus grant of £50 p.a., according to experience, less £100 p.a. for residential emoluments.

Applications, stating age, qualifications, experience, and nationality, with names and addresses of 3 referees, to Group Secretary, West Wales Hospital Management Committee, Glangwili, Carmarthen.

HAVERFORDWEST. PEMBROKE COUNTY WAR MEMORIAL HOSPITAL. (151 Beds. Recognised for Pre-registration Service.) WEST WALES HOSPITAL MANAGEMENT COMMITTEE. Applications are invited for the post of RESIDENT HOUSE OFFICER (medical), which will become vacant on 19th February, 1954. Salary £350, £400, or £450 p.a., according to experience (plus special grant of £50 p.a.), less £100 p.a. for residential emoluments.

Applications, stating age, qualifications, experience, and nationality, with names and addresses of 3 referees, to Group Secretary, West Wales Hospital Management Committee, Glangwili, Carmarthen.

HEMEL HEMPSTEAD, HERTS. WEST HERTS HOSPITAL. Pre-registration HOUSE SURGEON. Post vacant 12th February, 1954.

Apply quoting 2 referees to the Hospital Secretary.

HEREFORD GENERAL HOSPITAL. (154 Beds.) House OFFICER (pædiatrics) required immediately.

Applications, with copies of 2 recent testimonials, to the Secretary, Hospital Management Committee, County Hospital, Hereford.

HITCHIN, HERTS. LISTER HOSPITAL. Applications are invited for the post of RESIDENT HOUSE SURGEON, vacant 1st March, 1954. (Recognised as pre-registration post.)

Applications, stating age, nationality, qualifications, and experience, together with copies of 3 recent testimonials, to be sent to the Medical Director, Lister Hospital, Hitchin, Herts.

HORNCHURCH. ST. GEORGE'S HOSPITAL. Applications are invited from registered medical practitioners for the post of JUNIOR HOSPITAL MEDICAL OFFICER (resident) at the above Hospital which accommodates 339 chronic sick patients. The post offers excellent geriatric experience. Salary £700–£50–£1000 p.a., less £150 p.a. for board and accommodation.

Applications, stating age, nationality, qualifications, present appointment and experience, with copies of 2 testimonials of recent date or names of referees, should be sent immediately to the Secretary, Romford Group Hospital Management Committee, Oldchurch Hospital, Romford.

HOUNSLOW GENERAL HOSPITAL. (81 Beds.) Applications are invited for the appointment of CASUALTY OFFICER (resident), Senior House Officer grade, post now vacant. Salary £670 p.a., less £140 for residence, &c.

Applications, stating age, qualifications, experience, with copies of 3 recent testimonials or names for reference, to Hospital Secretary, Hounslow Hospital, Staines-road, Hounslow, Middlesex.

HUNTINGDON COUNTY HOSPITAL. Applications are invited for the post of JUNIOR HOUSE OFFICER (surgical) at this Hospital, which is approved by the licensing authority for Pre-registration Service. The Hospital is a busy one and is staffed by Consultants from Cambridge. There is also a full-time Senior Hospital Medical Officer on the staff.

Applications, giving full particulars, and names of 2 referees, to the Group Secretary, Hospital Management Committee Offices, Newmarket General Hospital, Newmarket, Suffolk.

HUDDERSFIELD ROYAL INFIRMARY. (312 Beds.) HUDDERSFIELD HOSPITAL MANAGEMENT COMMITTEE. Applications are invited from provisionally registered or registered medical practitioners for the post of HOUSE PHYSICIAN, duties to commence on 1st March, 1954. Salary in accordance with national scale.

Applications, together with copies of 3 recent testimonials, to be addressed to the undersigned as soon as possible.

H. J. JOHNSON, Secretary to the Management Committee.
The Royal Infirmary, Huddersfield.

HULL. KINGSTON GENERAL HOSPITAL. (447 Beds.) HULL A GROUP HOSPITAL MANAGEMENT COMMITTEE. Applications are invited for the appointment of SURGICAL HOUSE OFFICER (mainly gynæcology and orthopædic) (recognised pre-registration appointment). Salary £350, £400, or £450 according to experience. The post is resident and tenable for 6 months.

Applications to be forwarded to the Secretary.

ILFORD. KING GEORGE HOSPITAL. There is a vacancy for a SENIOR HOUSE OFFICER ANÆSTHETIST at the above Hospital. The Officer appointed will be required to be available for duty in other hospitals in the Group. Salary will be at the rate of £670 p.a., less emoluments.

Applicants should have been registered not less than 1 year and should send applications, accompanied by copies of 3 testimonials, to the undersigned within 7 days of the appearance of this advertisement.

H. F. HARRIS, Deputy Secretary,
Ilford and Barking Group Hospital Management Committee.
King George Hospital, Ilford.

IPSWICH. EAST SUFFOLK AND IPSWICH HOSPITAL. (360 Beds.) Applications are invited for the post of HOUSE SURGEON to the E.N.T. and Ophthalmic Departments. Post recognised for D.L.O. examination.

Applications, stating age, nationality experience and copies of recent testimonials, to the Hospital Secretary.

ISLE OF THANET HOSPITAL MANAGEMENT COMMITTEE.

General Hospital, Ramsgate (101 Beds)
HOUSE SURGEON.
General Hospital, Margate (132 Beds)
HOUSE SURGEON.

Approved pre-registration posts. Salary at the rate of £350–£450 p.a., according to experience, less £100 for residential emoluments.

Applications, with copies of testimonials, to Hospital Secretary of appropriate hospital.

ISLEWORTH. WEST MIDDLESEX HOSPITAL. South WEST MIDDLESEX HOSPITAL MANAGEMENT COMMITTEE. SENIOR HOUSE OFFICER required for Orthopædic Unit. Post recognised for F.R.C.S. Resident, full-time.

Applications, stating age, nationality, qualifications and experience, with copies of up to 3 testimonials, to Group Secretary, West Middlesex Hospital, Isleworth, Middlesex, by 2nd February, 1954.

ISLEWORTH. WEST MIDDLESEX HOSPITAL. South WEST MIDDLESEX HOSPITAL MANAGEMENT COMMITTEE. HOUSE OFFICER (third post), resident, Department of Dermatology. Candidates with some experience of dermatology will be given preference.

Applications, stating age, nationality, qualifications and experience, with copies of up to 3 recent testimonials, to Group Secretary, West Middlesex Hospital, Isleworth, Middlesex. Closing date 2nd February, 1954.

KEIGHLEY AND DISTRICT VICTORIA HOSPITAL, KEIGHLEY, YORKSHIRE. (144 Beds.) HOUSE PHYSICIAN (either sex), first, second or third post, vacant 1st February, 1954. Approved pre-registration appointment. Tenable for 6 months. Practitioners registered before 1st January, 1953, may also apply.

Applications, with full particulars as to age, nationality, qualifications, &c., and copies of testimonials, to be sent to Group Secretary, St. John's Hospital, Keighley.

KEIGHLEY AND DISTRICT VICTORIA HOSPITAL, KEIGHLEY, YORKSHIRE. (144 Beds.) 2 RESIDENT HOUSE SURGEONS (either sex) (general surgery, gynæcology, and E.N.T.); (general surgery, orthopædics, and E.N.T.). First, second, or third posts, vacant now. Approved pre-registration appointments. Tenable for 6 months. Practitioners registered before 1st January, 1953, may also apply.

Applications, with full particulars as to age, nationality, qualifications, &c., and copies of testimonials, to be sent to Group Secretary, St. John's Hospital, Fell-lane, Keighley.

LEEK (near). ST. EDWARD'S HOSPITAL, Cheddleton, near LEEK, NORTH STAFFS. (1420 Beds.) BIRMINGHAM REGIONAL HOSPITAL GROUP NO. 2. Applications are invited for the appointment of JUNIOR HOSPITAL MEDICAL OFFICER (psychiatry) at the above Hospital. Outpatient clinics held at the local General Hospital. Salary and conditions of service according to Ministry of Health terms. Charge for residential quarters and board £130 p.a.

Applications, with full details, and copies of recent testimonials, to the Medical Superintendent.

LINCOLN. COUNTY HOSPITAL. (200 Beds.) Lincoln NO. 1 HOSPITAL MANAGEMENT COMMITTEE. Applications are invited for an approved Pre-registration Post in Surgery at the above Hospital, vacant as from 16th February, 1954.

Apply with full particulars to—
R. W. HOWICK, Group Secretary.

LINCOLN. COUNTY HOSPITAL. (200 Beds.) Lincoln NO. 1 HOSPITAL MANAGEMENT COMMITTEE. Applications are invited for an approved Pre-registration Post in Medicine at the above Hospital, vacant as from 1st February, 1954.

Apply with full particulars to—
R. W. HOWICK, Group Secretary.

LINCOLN. BRACEBRIDGE HEATH HOSPITAL FOR MENTAL DISEASES. (1290 Beds.) Applications are invited for the appointment of a Locum Tenens JUNIOR HOSPITAL MEDICAL OFFICER (resident or non-resident), Male or Female (married or single). Salary £16 per week. There is residential accommodation available for a single or married officer. There will be scope for learning the use of modern psychiatric methods in the wards. Previous psychiatric experience is not essential. The appointment is subject to the provisions of the National Health Service superannuation regulations.

Applications, with names of 2 referees, should be forwarded as soon as possible to the Medical Superintendent, Bracebridge Heath Hospital, near Lincoln.

LINCOLN. BRACEBRIDGE HEATH HOSPITAL FOR MENTAL DISEASES. (1290 Beds.) Applications are invited for the appointment of JUNIOR HOSPITAL MEDICAL OFFICER (resident or non-resident), Male or Female (married or single). Salary and terms of service as issued by the Ministry of Health. Commencing salary £700 p.a. rising to £1000 p.a. There is furnished accommodation available for a married Officer, or residential accommodation for a single person. There will be scope for work at outpatient clinics, and in the use of modern psychiatric methods in the wards. Previous psychiatric experience is not essential. The appointment is subject to the provisions of the National Health Service superannuation regulations.

Applications, with names of 3 referees, should be forwarded as soon as possible to the Medical Superintendent, Bracebridge Heath Hospital, near Lincoln.

LEAMINGTON SPA. WARNEFORD GENERAL HOSPITAL. (207 Beds.) SOUTH WARWICKSHIRE HOSPITAL GROUP (NO. 14). Applications are invited for the appointment of HOUSE PHYSICIAN. Post vacant on 14th February, 1954. Pre-registration post.

Applications, with 2 recent testimonials, should be sent to the Hospital Secretary, as soon as possible.

LEEDS REGIONAL HOSPITAL BOARD invites applications for the following REGISTRAR posts :—

General Medicine

Halifax Group (non-resident). Duties divided between general medical and geriatrics (110 general medical, 380 geriatric, beds).

General Surgery

(*a*) Dewsbury, Batley and Mirfield Group (135 general surgical beds) (resident Dewsbury General Hospital).

(*b*) Keighley and District Victoria Hospital (55 general surgical beds) (preferably resident).

(*c*) Clayton Hospital, Wakefield (75 general surgical beds). Duties are those of Resident Surgical Officer (recognised for F.R.C.S.).

(*d*) Hospitals in the York A Group (122 general surgical beds) (non-resident). If desired the duties may be altered to include a proportion of orthopædic surgery.

(*e*) Otley General Hospital (50 surgical beds) (resident). Consultant staff mainly from Leeds Teaching Hospitals. Appointment includes 2 sessions clinical work at the General Infirmary at Leeds.

Infectious Diseases

Castle Hill Hospital, Cottingham, E. Yorks (208 I.D. beds) (resident).

Orthopædic Surgery

(*a*) Huddersfield Royal Infirmary and other hospitals in the Huddersfield Group (34 orthopædic beds) (non-resident).

(*b*) The General Hospital, Batley (36 orthopædic beds), and other hospitals in the Dewsbury, Batley and Mirfield Group (resident).

(*c*) Hull A Group (50 orthopædic beds), Hull B Group and East Riding Group (50 orthopædic beds) (non-resident). Includes some duties in the Casualty Department at the Hull Royal Infirmary.

(*d*) Halifax Royal Infirmary (approximately 60 orthopædic beds) and at other hospitals in the Halifax Group (preferably resident).

Pædiatrics

(*a*) Huddersfield and Halifax Groups (aggregate of 60 acute pædiatric beds) with additional duties in infectious diseases (preferably resident). Small flat available at Northowram Infectious Diseases Hospital, Halifax.

(*b*) The Victoria Hospital for Sick Children, Hull (150 Beds), and other general hospitals with pædiatric beds in the Hull A and the East Riding Hospital Management Committee Groups (non-resident).

Applications, stating age, qualifications and details of present and previous appointments with dates, together with the names and addresses of 3 referees, should be forwarded to the Secretary, Joint Registrars Committee, Park-parade, Harrogate, not later than 5th February, 1954.

LEEDS. UNITED LEEDS HOSPITALS. The General INFIRMARY AT LEEDS. Applications are invited for the post of HOUSE SURGEON to the Department of Neurosurgery. The post is resident and is recognised for Pre-registration Service under the Medical Act, 1950.

Applications, stating age and qualifications, together with the names of 3 referees, should be forwarded to the undersigned as soon as possible.

S. CLAYTON FRYERS, Secretary to the Board.
General Infirmary, Leeds, 1.

LANCASTER MOOR HOSPITAL, Lancaster. (Regional MENTAL HOSPITAL.) MANCHESTER REGIONAL HOSPITAL BOARD. Applications invited for post of RESIDENT or NON-RESIDENT REGISTRAR (Male or Female). Preference to candidates who have held house appointments at general hospitals. Unfurnished flat or house in Hospital grounds available for married applicants if required; furnished quarters for single persons. Modern methods of investigation and treatment carried out. Outpatients clinics (3) staffed from Hospital.

Applications, stating age, qualifications, and experience, and names of 2 referees, to be sent to the Medical Superintendent.

LANCASTER. BEAUMONT HOSPITAL. (124 Beds.) Applications are invited for the appointment of RESIDENT JUNIOR HOSPITAL MEDICAL OFFICER. Duties include the care of fever, tuberculosis, and medical pædiatric cases under the supervision of the appropriate Consultants, and attendances at consultative clinics. The post will be vacant 1st February, 1954.

Applications, with full particulars and the names of 2 referees, to Group Secretary, Royal Lancaster Infirmary, Lancaster.

LIVERPOOL. THE UNITED LIVERPOOL HOSPITALS. Applications are invited for the following House Officer posts for the 6 months commencing 1st March, 1954 :—

David Lewis Northern Hospital
ORTHOPÆDIC HOUSE SURGEON.

Royal Southern Hospital
CASUALTY OFFICER.

Royal Liverpool Children's Hospital
HOUSE SURGEON (City Branch).
HOUSE SURGEON (Heswall Branch).
HOUSE PHYSICIAN (Heswall Branch).
ORTHOPÆDIC HOUSE SURGEON (City Branch).
JUNIOR CASUALTY OFFICER (City Branch).

All the posts are open to pre-registration and other applicants.

Apply immediately on forms obtainable from the Secretary, The United Liverpool Hospitals, 80, Rodney-street, Liverpool, 1.

MARKET DRAYTON (near), SALOP. CHESHIRE JOINT SANATORIUM. (305 Beds.) STOKE-ON-TRENT HOSPITAL MANAGEMENT COMMITTEE. RESIDENT MEDICAL OFFICER (Junior Hospital Medical Officer or Senior House Officer, according to experience). Post offers exceptional experience in the treatment of pulmonary tuberculosis.

Applications to the Medical Superintendent at the Sanatorium.

MEXBOROUGH. MONTAGU HOSPITAL. (123 Beds.) SHEFFIELD REGIONAL HOSPITAL BOARD. Whole-time RESIDENT SURGICAL REGISTRAR required. Appointment for 1 year in the first instance.

Apply to Secretary, Sheffield Regional Hospital Board, Old Fulwood-road, Sheffield, by 1st February, 1954, giving age, nationality, qualifications, present and previous appointments with dates, naming 3 referees.

MANCHESTER. UNITED MANCHESTER HOSPITALS. SAINT MARY'S HOSPITALS. Applications are invited for the post of REGISTRAR ANÆSTHETIST to the Saint Mary's Hospitals for a period of 12 months, vacant immediately. The person appointed will require to undertake duties in both the obstetrical and gynæcological sections of the hospitals, but his services are particularly required in connection with the obstetrical units, where the person appointed will be required to take a close and personal interest not only in the anæsthesia for operative obstetrics, but in the general measures to relieve the pain of childbirth. Salary in accordance with national scale.

Forms of application may be obtained from the undersigned. The closing date for applications is 8th February, 1954.

A. R. WISE, General Superintendent.

Saint Mary's Hospitals, Manchester, 13.

MANCHESTER. UNITED MANCHESTER HOSPITALS. SAINT MARY'S HOSPITALS. Applications are invited for the post of SENIOR HOUSE OFFICER in Obstetrics. Applicants must have had previous hospital experience in general medicine and surgery, and in obstetrics. The post is recognised for purposes of the M.R.C.O.G. examination. The duties involve clinical responsibility for mothers and babies, and supervision of the work of pre-registration House Officers is also included. The appointment is for 12 months from 1st April, 1954. National scale.

Application forms may be obtained from the undersigned and returned not later than 12th February, 1954.

A. R. WISE, General Superintendent.

Saint Mary's Hospitals, Whitworth Park, Manchester, 13.

MANCHESTER. UNITED MANCHESTER HOSPITALS. SAINT MARY'S HOSPITALS. Applications are invited for 2 posts of HOUSE OFFICER in Gynæcology. Applicants must have had previous hospital experience in medicine and surgery. The posts are recognised for the purposes of the M.R.C.O.G. examination. The appointments are for 6 months commencing 1st April, 1954. Salary in accordance with national scale.

Application forms may be obtained from the undersigned and returned not later than 12th February, 1954.

A. R. WISE, General Superintendent.

Saint Mary's Hospitals, Whitworth Park, Manchester, 13.

MANCHESTER. UNITED MANCHESTER HOSPITALS. MANCHESTER ROYAL INFIRMARY, MANCHESTER, 13. SENIOR REGISTRAR to a General Medical Unit, to commence as soon as possible, at the Manchester Royal Infirmary. Whole-time non-resident post, tenable for 12 months, renewable. Applicants must possess a higher qualification. Arrangements may eventually be made for the successful candidate to transfer to 1 of the Manchester Regional Hospitals to continue training.

Applications to be made on forms obtainable from the undersigned and to be returned not later than 10th February, 1954.

F. J. CABLE, Secretary to the Board of Governors.

MANCHESTER ROYAL EYE HOSPITAL. United MANCHESTER HOSPITALS. Applications are invited for SENIOR HOUSE OFFICER post. Salary £670 p.a., less £130 p.a. for residential emoluments.

Application forms may be obtained from H. R. NORTH, General Superintendent.

MANCHESTER REGIONAL HOSPITAL BOARD. Applications are invited for the post of REGISTRAR in Chest Diseases, the main duties to be with the Bury and Rossendale Hospital Management Committee, with duties at Chest Clinics and at Aitken Sanatorium and Peel Hall Pulmonary Hospital, and other hospitals in the area.

Apply, giving names of 2 referees, to—

H. WILKINSON, Group Secretary.

Bury General Hospital, Bury, Lancs.

MANCHESTER REGIONAL HOSPITAL BOARD invite applications for the post of REGISTRAR in Pathology. The duties will be with the Stockport and Buxton Hospital Management Committee and the successful candidate will work under the direction of the Consultant Group Pathologist.

Applications, stating age, qualifications and experience, together with the names of 2 referees, to be addressed to the undersigned, forthwith. H. G. PRICE, Group Secretary.

59B, Shaw-heath, Stockport, Cheshire.

MANCHESTER REGIONAL HOSPITAL BOARD invite applications for the post of SENIOR REGISTRAR in Diagnostic Radiology to the North Manchester Group of hospitals (Ancoats, Manchester Northern, and Manchester Victoria Memorial Jewish Hospitals). Arrangements may later be made for the person appointed to transfer to the United Manchester Hospitals to continue training.

Forms of application may be obtained from the Senior Administrative Medical Officer of the Board, Cheetwood-road, Manchester, 8, and should be returned, with the names of 3 referees, by 1st February, 1954.

MANCHESTER REGIONAL HOSPITAL BOARD invite applications for the post of RESIDENT REGISTRAR in the Board's Non-tuberculous Thoracic Surgery Unit of 48 Beds at Park Hospital, Davyhulme. 1-year appointment, renewable. Post now vacant.

Application forms from Secretary, West Manchester Hospital Management Committee, Park Hospital, Davyhulme, Urmston.

MANCHESTER REGIONAL HOSPITAL BOARD invite applications for the post of Whole-time RESIDENT SURGICAL REGISTRAR to the West Manchester Hospital Management Committee. Primarily for duty at Park Hospital, Davyhulme, but with duties at other Group hospitals. Post now vacant. 12 months appointment, subject to renewal.

Forms from Secretary, Park Hospital, Davyhulme.

MANCHESTER. WEST MANCHESTER HOSPITAL MANAGEMENT COMMITTEE.

Park Hospital, Davyhulme (General Hospital—426 Beds)

1 SENIOR HOUSE OFFICER (anæsthetics). Hospital recognised for training for Diploma in Anæsthetics. Post now vacant.

1 HOUSE OFFICER (E.N.T.) (pre-registration). Post now vacant.

Eccles and Patricroft Hospital (General Hospital—72 Beds)

1 HOUSE OFFICER (post-registration post). Additional allowance of £50 p.a. Post now vacant. The work of the Hospital is mainly surgical and there is a busy Outpatient Department.

Forms from Secretary, Park Hospital, Davyhulme.

MANCHESTER (near). ALTRINCHAM GENERAL HOSPITAL AND ANNEXE. (130 Beds. Recognised under F.R.C.S. regulations.) MANCHESTER REGIONAL HOSPITAL BOARD. NORTH AND MID-CHESHIRE GROUP OF HOSPITALS. Applications are invited for the post of RESIDENT SURGICAL REGISTRAR, to commence 28th February, 1954. This appointment, in a busy general hospital staffed by Manchester Consultants, offers excellent opportunity of practical surgical experience to suitably qualified candidates.

Applications, together with 2 recent testimonials, to be sent to Group Secretary, North and Mid-Cheshire Hospital Management Committee, Sinderland-road, Altrincham, Cheshire, not later than 29th January, 1954.

MANCHESTER (near). ALTRINCHAM GENERAL HOSPITAL AND ANNEXE. (130 Beds.) Applications are invited for the post of SENIOR HOUSE OFFICER (surgical) to commence as soon as possible. This appointment, in a busy general Hospital staffed by Manchester Consultants, affords excellent experience to suitably qualified candidates. Opportunity will be given to assist in the major surgical work of the Hospital. Post recognised under F.R.C.S. regulations. Applications will also be considered for the post of Junior House Officer (surgical).

Full particulars should be forwarded to the Group Secretary, North and Mid-Cheshire Hospital Management Committee, The Hospital, Sinderland-road, Altrincham, Cheshire.

MAIDSTONE. WEST KENT GENERAL HOSPITAL. (135 Beds.) MID-KENT HOSPITAL MANAGEMENT COMMITTEE. Applications are invited for the pre-registration post of HOUSE SURGEON. 6 months appointment. Post vacant now. Salary at the rate of £350, £400, or £450 according to experience. A deduction at the rate of £100 a year is made in respect of board and lodging and other services provided.

Applications should be forwarded as soon as possible to the Administrative Officer at the Hospital.

MAIDSTONE. WEST KENT GENERAL HOSPITAL. (135 Beds.) MID-KENT HOSPITAL MANAGEMENT COMMITTEE. Applications are invited for the appointment of RECEIVING-ROOM OFFICER. Post vacant February, 1954. Salary £670 a year, with deduction of £150 a year for residential emoluments.

Applications to Administrative Officer at Hospital as soon as possible.

MOTHERWELL, HAMILTON AND DISTRICT BOARD OF MANAGEMENT. COUNTY HOSPITAL, CLELAND, LANARKSHIRE. Applications are invited for the post of SENIOR HOUSE OFFICER (resident) in the County Hospital, Cleland, Lanarkshire (180 Beds, mostly geriatrics). Salary £670, less residential emoluments.

Applications to Medical Superintendent, County Hospital, Cleland, Lanarkshire.

NEWCASTLE GENERAL HOSPITAL. (861 Beds.) NEWCASTLE UPON TYNE HOSPITAL MANAGEMENT COMMITTEE. The resident post of HOUSE SURGEON (Orthopædic Department) is now vacant.

Applications should be addressed to the Secretary, Newcastle General Hospital, Westgate-road, Newcastle upon Tyne, 4, together with 1 copy of 2 recent testimonials.

NEWCASTLE GENERAL HOSPITAL. (861 Beds.) NEWCASTLE UPON TYNE HOSPITAL MANAGEMENT COMMITTEE. Applications are invited from registered medical practitioners (Male and Female), for the resident post of SENIOR SURGICAL HOUSE OFFICER which becomes vacant on 1st February, 1954. The appointment is tenable for 12 months. Salary according to terms and conditions of service of hospital medical and dental staffs (England and Wales).

Applications, together with 1 copy of 2 testimonials, should be sent as soon as possible to the Secretary, Newcastle General Hospital, Westgate-road, Newcastle upon Tyne, 4.

NEWCASTLE REGIONAL HOSPITAL BOARD. BLENCATHRA SANATORIUM, near KESWICK. (100 Beds.) REGISTRAR CHEST PHYSICIAN (whole-time), resident. Salary £775–£890 p.a. Appointment will be for 1 year in the first instance, with probable extension for a further period. A house is available.

Applications, together with names and addresses of referees (preferably), or testimonials, to a total of 3, to be sent to the Senior Administrative Medical Officer, 1, Lonsdale-street, Carlisle, within 28 days.

NEWCASTLE REGIONAL HOSPITAL BOARD. ST. GEORGE'S HOSPITAL, MORPETH. REGISTRAR PSYCHIATRIST (whole-time), resident (single accommodation only available). Salary £775–£890 p.a. Appointment for 1 year in the first instance and may be renewed for a further period. Arrangements can be made for the person appointed to take the necessary course of study for the University of Durham Diploma in Psychological Medicine.

Applications, together with names and addresses of referees (preferably), or testimonials, to a total of 3, to be sent to the Regional Psychiatrist, "Blythswood South," Osborne-road, Newcastle upon Tyne, 2, within 14 days.

NEWCASTLE. THE UNITED NEWCASTLE UPON TYNE HOSPITALS. Applications are invited for the resident appointment of SENIOR HOUSE OFFICER to the Department of Obstetrics and Gynæcology. The appointment is for 1 year at the salary of £670 p.a., subject to the appropriate deductions.

Applications, giving full details with the names and addresses of 3 referees, should be sent to the undersigned within 2 weeks of the appearance of this advertisement.

A. W. SANDERSON, House Governor and Secretary.
Royal Victoria Infirmary, Newcastle upon Tyne.

NEWCASTLE. THE UNITED NEWCASTLE UPON TYNE HOSPITALS. ROYAL VICTORIA INFIRMARY. Applications are invited for the whole-time appointment of SENIOR REGISTRAR in the Department of Anæsthetics. The post, which is non-resident, except for rotational emergency duty, offers certain facilities for laboratory and clinical investigation. Applicants should have had considerable experience in anæsthesia and should hold the F.F.A. R.C.S. or the D.A.

Applications, stating age, nationality, qualifications and experience, with the names and addresses of 3 referees, should be sent to the undersigned within 2 weeks of the date of appearance of this advertisement.

A. W. SANDERSON, House Governor and Secretary.
Royal Victoria Infirmary, Newcastle upon Tyne.

NEWMARKET GENERAL HOSPITAL, Newmarket, SUFFOLK. Applications are invited for the post of HOUSE SURGEON (duties to commence 11th February, 1954). Duties include surgical house charge of general surgical, E.N.T. and eye cases. The post is resident and available for 6 months, and is recognised for pre-registration.

Applications, with copies of 3 recent testimonials, should be addressed to the Physician-Superintendent.

NEWPORT, I.W. ST. MARY'S HOSPITAL. (355 Beds.) ISLE OF WIGHT GROUP HOSPITAL MANAGEMENT COMMITTEE. SENIOR HOUSE OFFICER in Surgery. Salary £670 p.a. Applications are invited from registered medical practitioners. Vacant now.

HOUSE SURGEON. Post approved for Pre-registration Service. National salary scale and conditions. Vacant now.

Applications, stating age, nationality, qualifications, and experience, together with the names of 2 referees, to be sent as soon as possible to Group Secretary, Hospital Management Committee Headquarters, Clatterford House, Carisbrooke, I.W.

NEWPORT, MON. ROYAL GWENT HOSPITAL. (260 Beds—9 Residents.) JUNIOR HOSPITAL MEDICAL OFFICER (E.N.T. and ophthalmic) required. Post recognised for D.L.O. There are 23 E.N.T. and 8 ophthalmic beds. Salary £700–£50–£1000, less £120 for board-residence.

Write, quoting 2 referees, to T. A. JONES,
64, Cardiff-road, Newport, Mon.

NEWTON ABBOT HOSPITAL. (General Section—65 Beds.) RESIDENT SENIOR HOUSE SURGEON (Male or Female) required immediately. Married quarters available.

Applications, stating qualifications, nationality, age, with copy testimonials, to be sent to the Group Secretary, Torquay District Hospital Management Committee, 62/64, East-street, Newton Abbot, S. Devon.

NOTTINGHAM CITY HOSPITAL. (804 Beds.) Applications are invited for the post of HOUSE PHYSICIAN, vacant 1st March, 1954. Recognised for pre-registration purposes.

Applications, stating age, nationality, qualifications, and experience, together with copies of not more than 3 testimonials, to be sent immediately to the Hospital Secretary, City Hospital, Hucknall-road, Nottingham.

NOTTINGHAM GENERAL HOSPITAL. Applications are invited from registered medical practitioners for the post of SENIOR ORTHOPÆDIC AND FRACTURE HOUSE OFFICER. The post offers exceptional experience in traumatic and orthopædic surgery. Duties to commence as soon as possible. Salary and conditions of service in accordance with Ministry regulations. If resident £150 deducted for emoluments.

Applications, stating age, qualifications, and experience, together with copies of testimonials, to be sent to—

HENRY M. STANLEY, Secretary.

NOTTINGHAM GENERAL HOSPITAL. Ear, Nose AND THROAT DEPARTMENT. Applications are invited for the post of SENIOR E.N.T. HOUSE OFFICER at the above Hospital. This appointment is recognised for the D.L.O. and the F.R.C.S. examinations. Terms and conditions of service in accordance with the regulations of the Ministry of Health. Duties to commence about the end of January. Although the post is normally resident, consideration will be given to any applicant who desires to live out.

Applications, stating age, qualifications, and experience, together with copies of testimonials, to be sent to—

HENRY M. STANLEY, Group Secretary.
General Hospital, Nottingham.

NOTTINGHAM GENERAL HOSPITAL. Resident HOUSE SURGEON required (Male or Female) for the above Hospital. Duties to commence on or about 21st January, 1954. Salary and conditions of service in accordance with published regulations. The appointment is for a period of 6 months.

Applications, stating age, qualifications and experience, to be sent to HENRY M. STANLEY, Group Secretary.

NOTTINGHAM HOSPITAL FOR WOMEN, AND CHILDREN'S HOSPITAL, NOTTINGHAM. SHEFFIELD REGIONAL HOSPITAL BOARD. Whole-time RESIDENT or NON-RESIDENT REGISTRAR (anæsthetics) required. This appointment is interchangeable with 1 at the Nottingham City Hospital, where the post is recognised for the D.A. Appointment for 1 year in the first instance.

Apply to Secretary, Sheffield Regional Hospital Board, Old Fulwood-road, Sheffield, by 1st February, 1954, giving age, nationality, qualifications, present and previous appointments with dates, naming 3 referees.

NORTHALLERTON HOSPITAL MANAGEMENT COMMITTEE. FRIARAGE AND MATERNITY HOSPITALS. Applications are invited for the post of RESIDENT SENIOR HOUSE OFFICER in Obstetrics and Gynæcology for the above Hospitals. Previous experience in obstetrics is essential. The post which will be vacant 1st March, 1954, will be tenable for 6 months, and is subject to the terms and conditions of service for hospital medical staff.

Applications, with copies of testimonials or the names of 2 referees, should be addressed to the Secretary, Northallerton Hospital Management Committee, at the Friarage Hospital.

NORTHWOOD, MIDDLESEX. MOUNT VERNON HOSPITAL. Applications are invited for the post of HOUSE SURGEON to the Radiotherapy and E.N.T. Departments. This post is recognised as a pre-registration appointment.

Applications, accompanied by 2 testimonials, should be forwarded to the Resident Medical Officer, Mount Vernon Hospital, Northwood, Middlesex, by 6th February, 1954.

ORPINGTON HOSPITAL, Orpington, Kent. Applications are invited for the following posts :—

RESIDENT SENIOR HOUSE OFFICER (Male) in the Geriatric Department (285 Beds) plus 30-Bedded Annexe at Chislehurst. The post offers excellent opportunities for studying for postgraduate degrees and for study in the acute section of the Hospital. Vacancy is from 1st March, 1954. Interview by appointment welcomed.

CASUALTY OFFICER (Male) at Senior House Officer grade to commence on or about 15th February, 1954. Resident preferred but not essential. The post is recognised for the F.R.C.S.

Applications with testimonials to Physician-Superintendent.

PAISLEY AND DISTRICT HOSPITALS BOARD OF MANAGEMENT. INFECTIOUS DISEASES HOSPITAL, PAISLEY. HOUSE PHYSICIANS (2 required) for above Hospital for 6-month period commencing 1st February, 1954. Salary according to previous posts held.

Application should be made immediately to the Group Medical Superintendent, Royal Alexandra Infirmary, Paisley.

PETERBOROUGH. MEMORIAL HOSPITAL. Peter-BOROUGH AND STAMFORD HOSPITAL MANAGEMENT COMMITTEE. Applications are invited for the position of HOUSE PHYSICIAN which will become vacant on 1st March, 1954. The appointment will be for 6 months.

Applications, with testimonials, should be addressed to the Secretary, The Memorial Hospital, Midland-road, Peterborough.

PONTYPRIDD (near). EAST GLAMORGAN HOS-PITAL, CHURCH VILLAGE. (316 Beds and large Outpatient Department. Committee's Base Hospital serving population of 177,000. Recognised for D.Obst.R.C.O.G., D.C.H., and D.A.) PONTYPRIDD AND RHONDDA HOSPITAL MANAGEMENT COMMITTEE. RESIDENT SENIOR HOUSE OFFICER (pathology), tenable for 6 months.

Applications, stating age, qualifications and experience, together with copies of 2 recent testimonials, to be sent to the Group Secretary, Pontypridd and Rhondda Hospital Management Committee, Courthouse-street, Pontypridd.

PLYMOUTH. SOUTH DEVON AND EAST CORNWALL HOSPITAL. DEPARTMENT OF OBSTETRICS AND GYNÆCOLOGY. PLYMOUTH, SOUTH DEVON AND EAST CORNWALL GENERAL HOSPITAL GROUP. Applications invited from duly qualified and registered medical practitioners for the appointment of RESIDENT OBSTETRICAL OFFICER (Senior House Officer grade), vacant 1st April, 1954. There will be additional duties at the Flete Maternity Home and the Alexandra Maternity Home, which are parts of the Department. Candidates should have had considerable experience in a department of obstetrics and gynæcology. The appointment will be for a period of 12 months and is renewable. Salary £670 p.a. Terms and conditions of service are in accordance with the National Health Service terms. The post is recognised by the Royal College of Obstetricians and Gynæcologists for the Membership examination of the College.

Applications, stating age, nationality, qualifications, and experience, together with the names and addresses of 3 referees, should be sent to ARTHUR R. CASH, Group Secretary.
7, Nelson-gardens, Stoke, Plymouth.

PLYMOUTH. SOUTH DEVON AND EAST CORNWALL HOSPITAL. Applications are invited from registered medical practitioners for the appointments of :—

(1) HOUSE OFFICER in Obstetrics, Alexandra Maternity Home, Devonport, vacant 1st March, 1954.

(2) RESIDENT ANÆSTHETIST, Greenbank Road Hospital vacant immediately. Recognised for the D.A.

(3) HOUSE SURGEONS (2 posts), Greenbank Road Hospital, vacancies immediately, and 13th March, 1954. Recognised for the Fellowship of the Royal College of Surgeons.

Applications, stating age, nationality, qualifications, and experience, with the names of 3 referees, to be sent to the undersigned as soon as possible.

ARTHUR R. CASH, Group Secretary.

7, Nelson-gardens, Stoke, Plymouth.

POOLE GENERAL HOSPITAL, Poole, Dorset. Bournemouth and East Dorset Hospital Management Committee. HOUSE PHYSICIAN required 15th February, 1954.

Applications to the Hospital Secretary.

PORTSMOUTH GROUP HOSPITAL MANAGEMENT COMMITTEE. Applications are invited for the following appointments :—

Saint Mary's Hospital

SENIOR HOUSE PHYSICIAN, vacant 23rd February, 1954. The duties will be mainly in medical wards that form an Admission Unit for 450 geriatric beds in the Group, a Consultant Physician being in charge of this Unit. In addition, the successful candidate will act as Registrar to 20 acute medical beds in the Hospital.

(74 acute medical beds)

HOUSE PHYSICIANS, vacant 4th February, 1954, and 8th February, 1954. Pre-registration posts.

(107 surgical beds) Recognised for F.R.C.S.

SENIOR HOUSE OFFICER (Casualty and Orthopædic Departments), vacant now.

HOUSE SURGEONS, vacant 20th January, 1954, and 2nd February, 1954. Pre-registration posts.

PÆDIATRIC DEPARTMENT (53 Beds)

HOUSE PHYSICIAN, vacant 26th January, 1954.

Royal Portsmouth Hospital

SENIOR HOUSE SURGEON (Orthopædic and Casualty Departments), vacant 15th February, 1954.

(70 surgical beds) Recognised for F.R.C.S.

HOUSE SURGEON, vacant 26th January, 1954. Pre-registration post.

PÆDIATRIC DEPARTMENT (15 Beds)

HOUSE PHYSICIAN, vacant 17th February, 1954.

Queen Alexandra Hospital

(40 acute medical beds)

SENIOR HOUSE PHYSICIAN, vacant now.

(124 surgical beds) Recognised for F.R.C.S.

HOUSE SURGEONS, vacant now and 26th January, 1954. Pre-registration posts.

Applications, stating age, experience, and qualifications, and names of 2 referees, should be submitted as soon as possible to—

35, Grove-road South, Southsea. E. H. HURST.

ROTHERHAM. MOORGATE GENERAL HOSPITAL. (358 Beds.) SHEFFIELD REGIONAL HOSPITAL BOARD. Whole-time RESIDENT SURGICAL REGISTRAR required. Appointment for 1 year in first instance.

Apply to Secretary, Sheffield Regional Hospital Board, Old Fulwood-road, Sheffield, by 1st February, 1954, giving age, nationality, qualifications, present and previous appointments with dates, naming 3 referees.

ROTHERHAM. OAKWOOD HALL SANATORIUM (100 Beds) AND THE CHEST CLINIC, ROTHERHAM. Whole-time RESIDENT REGISTRAR (chest diseases) required. Appointment for 1 year in first instance.

Apply to Secretary, Sheffield Regional Hospital Board, Old Fulwood-road, Sheffield, by 1st February, 1954, giving age, nationality, qualifications, present and previous appointments with dates, naming 3 referees.

ROMFORD, ESSEX. RUSH GREEN HOSPITAL. (301 Beds.) Applications are invited from registered medical practitioners for the post of HOUSE PHYSICIAN (resident), vacant from 24th February, 1954, and tenable for 6 months. This Hospital provides for acute medical and surgical patients in addition to a limited number of fever cases. The post offers good opportunities for gaining experience in both general medicine and fevers.

Applications, stating age, nationality, qualifications, present appointment and experience, with copies of 2 recent testimonials or names of referees, should be sent immediately to the Medical Superintendent.

ROMFORD, ESSEX. OLDCHURCH HOSPITAL. (722 Beds.) RESIDENT HOUSE SURGEONS (2) are required in February, 1954, in the General Surgical Unit at the above Hospital. Recognised for F.R.C.S. 6 months appointments. This very active general surgical unit of approximately 100 Beds affords ample opportunity for candidate to obtain first-class tuition and experience.

Applications, stating age, nationality, qualifications with dates, and details of experience, together with copies of 2 recent testimonials or names of 2 referees, should be sent immediately to the Group Secretary, Romford Group Hospital Management Committee, Oldchurch Hospital, Romford.

ROMFORD, ESSEX. OLDCHURCH HOSPITAL. (722 Beds.) Applications are invited from registered medical practitioners for the post of SENIOR HOUSE OFFICER in the Department of Ophthalmology, vacant from 24th February, 1954.

Applications, stating age, qualifications, present appointment and experience with dates, together with copies of 2 testimonials of recent date or names of 2 referees, should be sent immediately to the Group Secretary, Romford Group Hospital Management Committee, Oldchurch Hospital, Romford.

ROMFORD ESSEX. OLDCHURCH HOSPITAL. (722 Beds.) Applications are invited from registered medical practitioners for the post of ORTHOPÆDIC HOUSE SURGEON (resident) in the Orthopædic and Accident Unit, vacant from 1st February, 1954. The service consists of 100 Beds equally divided between traumatic surgery and "cold" orthopædics. Post is recognised for Pre-registration Service and for F.R.C.S.

Applications, stating age, nationality, qualifications with dates, present appointment and experience, and 2 recent testimonials or names of 2 referees, should be forwarded immediately to the Secretary, Romford Group Hospital Management Committee, Oldchurch Hospital, Romford.

ROCHDALE AND DISTRICT HOSPITAL MANAGEMENT COMMITTEE. BIRCH HILL HOSPITAL (GENERAL). RESIDENT ANÆSTHETIC SENIOR HOUSE OFFICER. Post now vacant. Recognised for D.A. examination.

Apply at once to the Group Secretary, Central Offices, Birch Hill Hospital, Rochdale, Lancs.

READING AREA DEPARTMENT OF MEDICINE. Applications invited from registered medical practitioners for the appointments of 3 HOUSE PHYSICIANS, for periods of 6 months, vacant 1st March, 1954. Salary £350–£450 p.a., less £100 residential emoluments. Successful applicants will be required to carry out duties at the Royal Berkshire (403 Beds), Battle (420 Beds), and Prospect Park (104 Beds) Hospitals. Experience to be gained is exceptional, covering the whole field of clinical medicine, including children's diseases, fevers, pulmonary tuberculosis, and geriatrics.

Applications should state age, qualifications with dates, nationality, and particulars of present post, accompanied by 1 copy recent testimonial, to Secretary, Royal Berkshire Hospital, Reading.

READING. ROYAL BERKSHIRE (403 Beds) and BATTLE (343 Beds) HOSPITALS. Applications are invited for the posts of 2 RESIDENT HOUSE SURGEONS, Area Accident and Orthopædic Department, vacant 1st February and 1st March, 1954. Also casualty duties.

Apply stating age, nationality, qualifications with dates, present post, with copy of recent testimonial, to Secretary, Royal Berkshire Hospital.

READING. ROYAL BERKSHIRE HOSPITAL. (403 Beds.) Applications invited for joint appointment of JUNIOR HOUSE OFFICER to the Pædiatric and E.N.T. Departments, for period of 6 months, vacant 1st March, 1954. Salary within scale £350–£450 p.a., less £100 for board, residence, &c.

Applications should state age, qualifications with dates, nationality and particulars of present post, accompanied by 1 copy recent testimonial, to Secretary.

SALFORD. HOPE HOSPITAL. Manchester Regional HOSPITAL BOARD. Applications are invited for the post of REGISTRAR (obstetrics and gynæcology) which will become vacant at the end of January, 1954. The Hospital is recognised for M.R.C.O.G.

Applications, stating age, qualifications and experience, together with the names of 3 referees, should be addressed to the Group Secretary, Salford Hospital Management Committee, Salford Royal Hospital, Salford, 3, to arrive not later than 30th January, 1954.

SALISBURY GENERAL HOSPITAL. Salisbury Group HOSPITAL MANAGEMENT COMMITTEE. Applications are invited for the post of RESIDENT CASUALTY OFFICER (Senior House Officer) for a period of 12 months. Post vacant now.

Applications, naming 2 referees, to Group Secretary, Odstock Hospital, Salisbury.

SCUNTHORPE, LINCS. WAR MEMORIAL HOSPITAL. (267 Beds.) SCUNTHORPE HOSPITAL MANAGEMENT COMMITTEE. Immediate vacancy for HOUSE SURGEON (Senior House Officer); general surgery with gynæcology.

Applications, stating qualifications, experience and naming 2 referees, to Group Secretary.

SCOTLAND. EASTERN REGIONAL HOSPITAL BOARD. PSYCHIATRY—PERTHSHIRE MENTAL HOSPITALS. Applications are invited for appointments as REGISTRAR (preferably resident) at the Perthshire Mental Hospitals—Murray Royal, Perth (260 Beds), and Murthly Hospital, Perthshire (460 Beds). House available. Salary and conditions of service in accordance with national agreement.

Forms of application and further particulars may be had from the Secretary, Eastern Regional Hospital Board, "Braeknowe," 430, Blackness-road, Dundee, with whom applications must be lodged not later than 6th February, 1954.

SCOTLAND. EASTERN REGIONAL HOSPITAL BOARD. (Geriatrics.) MARYFIELD HOSPITAL, DUNDEE. Applications are invited for the post of REGISTRAR in the Geriatric Unit at Maryfield General (teaching) Hospital, Dundee (400 Beds, 80 geriatric). The successful candidate will work under the Consultant Geriatrician and the post is suitable for a person primarily interested in geriatrics or working for a higher medical qualification in general medicine, as the unit is closely linked with the Department of Medicine, St. Andrews University. Salary and conditions of service in accordance with national agreement.

Forms of application and further particulars from the Secretary to the Board, "Braeknowe," 430, Blackness-road, Dundee, with whom applications must be lodged not later than 6th February, 1954.

SCOTLAND. SOUTH-EASTERN REGIONAL HOSPITAL BOARD. Applications are invited for the appointment of REGISTRAR in the Regional Pool of Anæsthetists based on the Royal Infirmary of Edinburgh. The post is superannuable and the conditions of service are in accordance with the regulations.

Applications, giving particulars of age, previous experience, and qualifications, together with the names of 2 referees, should be submitted to the Secretary, South-Eastern Regional Hospital Board, Scotland, 11, Drumsheugh-gardens, Edinburgh, 3, within 30 days.

SCOTLAND. WESTERN REGIONAL HOSPITAL BOARD. Applications are invited for the post of SENIOR HOUSE OFFICER in the E.N.T. Department, Stobhill Hospital, Glasgow. The appointment will be for 1 year in the first instance.

Applications, stating age, qualifications, experience, and present appointment and naming 3 referees, to be lodged by 27th January, 1954, with the Secretary, Board of Management for Glasgow Northern Hospitals, 13, Woodside-place, Glasgow, C.3.

SCOTLAND. WESTERN REGIONAL HOSPITAL BOARD. Applications are invited for SENIOR HOUSE OFFICERS (3 posts) in the Psychiatry Unit at Stobhill Hospital, Glasgow. The appointments will be for 1 year in the first instance. The Unit consists of 180 Beds with 1200 admissions yearly and deals with acute treatable cases ; it is recognised for the D.P.M.

Applications, stating age, qualifications, experience, and present appointment, and naming 3 referees, to be lodged by 27th January, 1954, with the Secretary, Board of Management for Glasgow Northern Hospitals, 13, Woodside-place, Glasgow, C.3.

SCOTLAND. WESTERN REGIONAL HOSPITAL BOARD. Applications are invited for the following appointments, which will be for 1 year in the first instance :—

2 REGISTRARS in Obstetrics and Gynæcology based at Cresswell Maternity Hospital, Dumfries.

SENIOR REGISTRAR in Pathology based at the Southern General Hospital, Glasgow.

These appointments are subject to the National Health Service (Scotland) superannuation regulations.

Applications (12 copies), stating date of birth, qualifications, experience, present appointment, and the names of 3 referees, to reach the Secretary, Western Regional Hospital Board, 64, West Regent-street, Glasgow, by 10th February, 1954.

SKIPTON (near). THE HOSPITAL, Grassington, near SKIPTON. (208 Beds.) MIDDLETON AND GRASSINGTON GROUP. Applications are invited for the appointment of JUNIOR HOSPITAL MEDICAL OFFICER at the above Hospital for tuberculosis. The Hospital caters for pulmonary tuberculosis and thoracic surgery. Remuneration £700 rising to £1000 p.a., in accordance with National award. Accommodation available for single applicants for which an appropriate deduction for full board-residence will be made.

Applications to the Secretary at the above Hospital.

SHREWSBURY. ROYAL SALOP INFIRMARY AND COPTHORNE HOSPITAL. (500 Beds.) SHREWSBURY GROUP HOSPITAL MANAGEMENT COMMITTEE. Applications are invited for the post of RESIDENT ANÆSTHETIST (Senior House Officer). Post recognised under conditions of F.F.A.R.C.S. examination. Vacant immediately.

Applications, stating age, nationality, qualifications and previous experience, together with copies of recent testimonials, should be sent to the Group Secretary, Hospital Management Committee, Royal Salop Infirmary, Shrewsbury.

J. P. MALLETT, Group Secretary.

SHEFFIELD, 6. WHARNCLIFFE HOSPITAL. Sheffield NO. 2 HOSPITAL MANAGEMENT COMMITTEE. RESIDENT HOUSE SURGEON required immediately. Post provides experience in general surgery, and is approved for Pre-registration Service. National Health Service salary and conditions.

Applications forthwith to R. BRADLEY, Group Secretary.

SHEFFIELD. THE UNITED SHEFFIELD HOSPITALS. Applications are invited for the following posts :—

Royal Infirmary, Infirmary-road, Sheffield, 6

(*a*) NON-RESIDENT SENIOR HOUSE OFFICER in General Medicine. Post vacant 25th February.

(*b*) NON-RESIDENT REGISTRAR or SENIOR HOUSE OFFICER in General Medicine. Grade according to qualifications and experience. Post vacant 1st April, 1954.

Jessop Hospital for Women, Leavygreave-road, Sheffield, 3

(*c*) Resident posts of SENIOR HOUSE OFFICER in the Obstetrics Department. Vacancies will occur on 1st April, 1954.

Royal Hospital Unit

(*d*) REGISTRAR to the Department of Neurology. Post vacant 11th April, 1954.

Children's Hospital, Western Bank, Sheffield, 10

(*e*) MEDICAL REGISTRAR (normally resident). Inpatient and outpatient responsibilities. Full opportunities to attend clinical conferences in this and associated hospitals.

Applications for posts (*a*) and (*c*) should state age, qualifications, and experience, and enclose copy testimonials. They should be sent at once to the Superintendent of the hospital concerned.

Applications for the other posts should state age, qualifications, and experience with the names of 3 referees, and be sent to the Chief Administrative Officer, The United Sheffield Hospitals, West-street, Sheffield, 1, not later than : for (*d*) 30th January ; (*b*) and (*e*) 5th February.

SHEFFIELD. THE UNITED SHEFFIELD HOSPITALS. ROYAL INFIRMARY UNIT. Applications are invited for the non-resident post of REGISTRAR or SENIOR HOUSE OFFICER (general medicine) at the above Hospital. Grade according to qualifications and experience. Post vacant 25th February, 1954.

Applications, stating age, qualifications, and experience, with the names of 3 referees, should be sent immediately to the Chief Administrative Officer, The United Sheffield Hospitals, West-street, Sheffield, 1.

SHEFFIELD CITY GENERAL HOSPITAL. (642 Beds. Recognised as training hospital for the D.C.H.) SHEFFIELD REGIONAL HOSPITAL BOARD. Whole-time RESIDENT REGISTRAR (pædiatrics) required. Appointment for 1 year in the first instance.

Apply to Secretary, Sheffield Regional Hospital Board, Old Fulwood-road, Sheffield, by 1st February, 1954, giving age, nationality, qualifications, present and previous appointments with dates, naming 3 referees.

SHEFFIELD. CITY GENERAL HOSPITAL. Sheffield REGIONAL HOSPITAL BOARD. Whole-time NON-RESIDENT SENIOR ANÆSTHETIC REGISTRAR for the above Hospital. Candidates should possess the Diploma in Anæsthetics. The Hospital has teaching affiliations with the Sheffield University, and most of the staff have the status of clinical teachers. There is a Professorial Gynæcology Unit, a Department of Thoracic Surgery and a Regional Cardiological Department. Appointment for 1 year in the first instance, reviewable annually. It has been agreed between the Sheffield Regional Hospital Board and the Board of Governors of the United Sheffield Hospitals that the tenure of the appointment will be divided between the City General Hospital and 1 of the Teaching Hospitals.

Applications, giving age, nationality, qualifications, present and previous appointments with dates, together with names and addresses of 3 referees, should be sent to the Secretary, Sheffield Regional Hospital Board, Old Fulwood-road, Sheffield, to arrive not later than 1st February, 1954.

SHEFFIELD REGIONAL HOSPITAL BOARD. Whole-time Resident Locum SURGICAL REGISTRAR required at the Moorgate General Hospital, Rotherham, from 1st February, 1954. Remuneration at the rate of £16 per week with a deduction for residence.

Apply to Secretary, Sheffield Regional Hospital Board, Old Fulwood-road, Sheffield, naming 2 referees.

SHEFFIELD REGIONAL HOSPITAL BOARD. Whole-time Resident Locum SURGICAL REGISTRAR required from 29th January, 1954, at the Montagu Hospital, Mexborough. Remuneration at the rate of £16 per week with a deduction for residence.

Apply to Secretary, Sheffield Regional Hospital Board, Old Fulwood-road, Sheffield, naming 2 referees.

SLOUGH, BUCKS. UPTON HOSPITAL. Locum Senior HOUSE OFFICER (gynæcology) required 1st February.

Applications, stating age and qualifications, to Hospital Secretary.

SLOUGH. UPTON HOSPITAL. Applications invited for post of SENIOR HOUSE OFFICER (Department of Obstetrics and Gynæcology), vacant 1st February. Preference will be given to applicants who have had previous experience in a general or medical appointment. The post is resident.

Applications, stating age, qualifications, and previous experience, together with copies of 2 recent testimonials, to Hospital Secretary.

SLOUGH. UPTON HOSPITAL. Senior House Officer (medical) required for post vacant 31st January. Salary on national scale.

Applications, stating age and qualifications, together with 2 testimonials, to Hospital Secretary.

STOCKPORT. STEPPING HILL HOSPITAL. Applica-tions are invited for the resident post of SENIOR HOUSE OFFICER (pathology).

Applications, stating age, experience and qualifications, together with copies of 2 testimonials, to be addressed to the Secretary, Stockport and Buxton Hospital Management Committee, 59B, Shaw-heath, Stockport, Cheshire, immediately.

SOUTHAMPTON EYE HOSPITAL. (32 Beds. Recog-nised for the D.O.M.S.) RESIDENT SENIOR HOUSE OFFICER required immediately. Salary £670 p.a.

Applications, with copies of testimonials, should be forwarded as soon as possible to the Secretary, Southampton Group Hospital Management Committee, Bullar-street, Southampton.

SOUTHAMPTON. ROYAL SOUTH HANTS HOSPITAL (278 Beds) and SOUTHAMPTON GENERAL HOSPITAL (471 Beds). SENIOR HOUSE OFFICER (E.N.T.) required towards end of January. Post recognised for the F.R.C.S. (Eng.) and D.L.O. examinations and provides experience in all branches of E.N.T. work, including audiometry. The Group includes a diagnostic and distributing Hearing Aid Centre.

Applications, with copies of recent testimonials, should be forwarded as soon as possible to the Secretary, Southampton Group Hospital Management Committee, Bullar-street, Southampton.

SOUTHAMPTON. ROYAL SOUTH HANTS HOSPITAL. (278 Beds.) CASUALTY OFFICER/SENIOR HOUSE OFFICER (orthopædic) required for the above Hospital (Orthopædic Unit 74 Beds). This Hospital is the centre to which all trauma from a large industrial town and port is directed, thus providing excellent experience in the treatment of traumatic conditions.

Applications, with copies of testimonials, to be submitted as soon as possible, to the Secretary, Southampton Group Hospital Management Committee, Bullar-street, Southampton.

SOUTH EAST METROPOLITAN REGIONAL HOS-PITAL BOARD. Applications are invited for a whole-time appointment as RESIDENT SURGICAL OFFICER to fill a vacancy in the approved establishment at the Dartford Group of hospitals. The salary will be £890 p.a. and the appointment will be in accordance with the terms and conditions of service of hospital medical and dental staffs (England and Wales) and will be for 1 year in the first instance, renewable for a further year.

Applications, giving particulars of age, qualifications and experience with relevant dates, together with the names and addresses of 2 referees, to be sent to the Secretary, Registrars Committee, South East Metropolitan Regional Hospital Board, 11, Portland-place, W.1, not later than 6th February, 1954.

SOUTHPORT. PROMENADE HOSPITAL. House PHYSICIAN (resident). Appointment, which is not recognised for pre-registration purposes, is available either for normal tenure or on temporary basis. Salary £350, £400 or £450 p.a., according to previous posts held in National Health Service, less £100 for board, &c.

Apply to— T. CROOK, Group Secretary,
Southport and District Hospital Management Committee.
Promenade Hospital, Southport.

SOUTHEND GENERAL HOSPITAL. Applications are invited for the post of RESIDENT GYNÆCOLOGICAL HOUSE SURGEON, vacant 22nd February, 1954. Post recognised for M.R.C.O.G.

Applications, &c., to reach the undersigned not later than 27th January, 1954. J. C. FIELD, Secretary.

STAFFORD. STAFFORDSHIRE GENERAL INFIRMARY. (175 Beds—Recovery Unit 32 Beds.) STAFFORD HOSPITAL MANAGEMENT COMMITTEE. HOUSE SURGEON (Male or Female), vacant 1st February. Post recognised for Pre-registration Service and for F.R.C.S.

Applications, giving full particulars, together with copies of 3 recent testimonials, to the Group Secretary, 13, Foregate-street, Stafford.

STAFFORD. STAFFORDSHIRE GENERAL INFIRMARY. (175 Beds.) STAFFORD HOSPITAL MANAGEMENT COMMITTEE. RESIDENT CASUALTY OFFICER (Junior Hospital Medical Officer status) required. Male or Female.

Applications, giving particulars of age, previous experience and copies of 2 recent testimonials, to the Group Secretary, Stafford Hospital Management Committee, 13, Foregate-street, Stafford.

STOKE-ON-TRENT. BUCKNALL ISOLATION HOSPITAL. STOKE-ON-TRENT HOSPITAL MANAGEMENT COMMITTEE. Applications invited for the post of SENIOR HOUSE OFFICER (medical) vacant very shortly.

Applications, with copy testimonials and full details, to the Group Secretary, Hospital Management Committee, Princes-road, Stoke-on-Trent.

STOKE-ON-TRENT. CITY GENERAL HOSPITAL. STOKE-ON-TRENT HOSPITAL MANAGEMENT COMMITTEE. HOUSE OFFICERS (medical) required. 2 posts vacant very shortly. Pre-registration posts.

Applications, with full details, to the Secretary, Hospital Management Committee, Princes-road, Stoke-on-Trent.

STOKE-ON-TRENT. NORTH STAFFORDSHIRE ROYAL INFIRMARY. STOKE-ON-TRENT HOSPITAL MANAGEMENT COMMITTEE. Applications invited for SENIOR HOUSE OFFICER (orthopædics). Post recognised for F.R.C.S.

Apply, stating age and nationality, together with details of previous service, to the Group Secretary, Stoke-on-Trent Hospital Management Committee, Princes-road, Stoke-on-Trent.

STOKE-ON-TRENT. NORTH STAFFORDSHIRE ROYAL INFIRMARY. STOKE-ON-TRENT HOSPITAL MANAGEMENT COMMITTEE. Applications invited for HOUSE OFFICER (general surgery) vacant shortly. Hospital recognised for F.R.C.S. examinations, and the post is recognised for experience during the pre-registration period.

Apply, with copy testimonials, stating age, nationality and full details of previous service, to the Group Secretary, Hospital Management Committee, Princes-road, Stoke-on-Trent.

STOKE-ON-TRENT. NORTH STAFFORDSHIRE ROYAL INFIRMARY. STOKE-ON-TRENT HOSPITAL MANAGEMENT COMMITTEE. HOUSE OFFICER (orthopædics) required, vacant now. Post recognised for F.R.C.S.

Applications, stating age and nationality, together with details of previous service, to the Group Secretary, Stoke-on-Trent Hospital Management Committee, Princes-road, Stoke-on-Trent.

ST. ALBANS CITY HOSPITAL, St. Albans, Herts. (382 Beds.) CASUALTY OFFICER (Registrar grade) required for the Casualty Department at the above Hospital. Post recognised for the F.R.C.S. regulations and vacant for 6 months or longer. This is a temporary appointment.

Applications, stating age, qualifications and experience, together with the names of 2 referees, should be forwarded to the Group Secretary, St. Albans City Hospital, Normandy-road, St. Albans, immediately.

ST. ALBANS CITY HOSPITAL, St. Albans, Herts. (382 Beds.) HOUSE SURGEON (House Officer grade) required for 1 of the 2 general surgical teams. (Recognised for the F.R.C.S.) Post vacant approximately 19th February, 1954, and tenable for 6 months. Preference given to candidates seeking pre-registration posts under the Medical Act, 1950.

Applications, stating age, qualifications and experience, together with the names of 2 referees, to the Group Secretary, St. Albans City Hospital, Normandy-road, St. Albans.

ST. ALBANS. SHENLEY HOSPITAL. (2053 Beds.) NORTH WEST METROPOLITAN REGIONAL HOSPITAL BOARD. Whole-time PSYCHIATRIC REGISTRAR required for 1 year in first instance. Hospital may be visited by direct appointment.

Application forms obtainable from and returnable to Secretary, Shenley Hospital Management Committee, Shenley Hospital, near St. Albans, Herts, by 8th February, 1954.

ST. HELENS AND DISTRICT HOSPITAL MANAGEMENT COMMITTEE. The following Resident House Officer posts become vacant on the dates shown :—

St. Helens Hospital

1 HOUSE SURGEON, immediate vacancy.
1 HOUSE PHYSICIAN, vacant 1st March, 1954.
1 HOUSE SURGEON, vacant 1st April, 1954.

Whiston Hospital

HOUSE PHYSICIAN, vacant 1st March, 1954.

All the above posts are recognised for Pre-registration Service.

Applications, stating age, experience, and date of qualification, and giving 2 names for reference, should be forwarded to the Secretary, Group Office, Whiston Hospital, Prescot, immediately.

SWANSEA HOSPITAL. (403 Beds.) Glantawe Hospital MANAGEMENT COMMITTEE. Registered medical practitioners are invited to apply for the resident appointment of ANÆSTHETIST (Senior House Officer grade) at Swansea Hospital. The Hospital is recognised under D.A. regulations.

Applications, stating age, qualifications, and experience, should be addressed to—

O. C. HOWELLS, Group Secretary,
Glantawe Hospital Management Committee.
St. Helen's-road, Swansea.

SWANSEA. MORRISTON HOSPITAL. (450 Beds.) GLANTAWE HOSPITAL MANAGEMENT COMMITTEE. Applications are invited from registered medical practitioners for the resident appointment of SENIOR HOUSE OFFICER in the Casualty Department, with duties in the Orthopædic Department.

Applications, stating age, qualifications, and experience should be addressed to the Medical Superintendent, Morriston Hospital, Swansea. O. C. HOWELLS, Group Secretary.

SUTTON-IN-ASHFIELD. KINGS MILL HOSPITAL. (172 Beds.) SHEFFIELD REGIONAL HOSPITAL BOARD. Whole-time RESIDENT SURGICAL REGISTRAR required. Appointment for 1 year in first instance. Apart from the Surgical Unit there are also E.N.T. and Gynæcological Units at this Hospital.

Apply to Secretary, Sheffield Regional Hospital Board, Old Fulwood-road, Sheffield, by 1st February, 1954, giving age, nationality, qualifications, present and previous appointments with dates, naming 3 referees.

TAPLOW, near MAIDENHEAD. CANADIAN RED CROSS MEMORIAL HOSPITAL. OBSTETRICAL AND GYNÆCOLOGICAL REGISTRAR required at the above Hospital. Post recognised for M.R.C.O.G. Hospital may be visited by direct appointment.

Application forms obtainable from, and returnable to, Group Secretary, Windsor Group Hospital Management Committee, Alma-road, Windsor, by 6th February.

TAPLOW, near MAIDENHEAD. CANADIAN RED CROSS MEMORIAL HOSPITAL. REGISTRAR required to the Special Unit for Research in Juvenile Rheumatism at the above Hospital. Post offers scope for those interested in research, pædiatrics, rheumatology or cardiology. Hospital may be visited by direct appointment.

Application forms obtainable from, and returnable to, Group Secretary, Windsor Group Hospital Management Committee, Alma-road, Windsor, by 6th February.

TUNSTALL. BURSLEM, HAYWOOD AND TUNSTALL WAR MEMORIAL HOSPITAL. (96 Beds.) STOKE-ON-TRENT HOSPITAL MANAGEMENT COMMITTEE. Applications are invited for SENIOR HOUSE OFFICER (surgical).

Apply, with copy testimonials and details of previous appointments held, to the Group Secretary, Stoke-on-Trent Hospital Management Committee, Princes-road, as soon as possible.

TUNSTALL. BURSLEM, HAYWOOD AND TUNSTALL WAR MEMORIAL HOSPITAL. (96 Beds.) STOKE-ON-TRENT HOSPITAL MANAGEMENT COMMITTEE. Applications are invited for HOUSE OFFICER (medical).

Apply, with copy testimonials and details of previous appointments held, to the Group Secretary, Stoke-on-Trent Hospital Management Committee, Princes-road, Stoke-on-Trent, as soon as possible.

TYNEMOUTH VICTORIA JUBILEE INFIRMARY, Hawkey's-lane, NORTH SHIELDS, NORTHUMBERLAND. (109 Beds.) Appointment of SENIOR HOUSE PHYSICIAN.

Applications from registered medical practitioners who have been qualified at least 1 year should be sent, with 2 testimonials or names of 2 referees, to the House Governor.

VIRGINIA WATER, SURREY. HOLLOWAY SANATORIUM. SOUTH WEST METROPOLITAN REGIONAL HOSPITAL BOARD. Applications are invited for the whole-time appointment of PSYCHIATRIC REGISTRAR. Resident or non-resident post, but accommodation only for a single person.

Application forms are obtainable from the Group Secretary, and should be returned within 14 days from the date of this advertisement.

WALTHAM ABBEY, ESSEX. HONEY LANE HOSPITAL. Applications are invited for the newly established post of RESIDENT JUNIOR HOSPITAL MEDICAL OFFICER at the above Hospital. Successful candidate will be responsible, under visiting Consultants, for day-to-day care of tuberculous (56 Beds) and infectious disease patients (34 Beds), and will be required to undertake relief duty, when necessary, on the general medical ward. Candidates must have had experience in the treatment of tuberculosis and infectious diseases. The salary for the post is in accordance with national scale, viz. : £700–£50–£1000 p.a., from which a deduction of £130 p.a., for board, lodging, &c., will be made. Alternatively, it may be possible to provide married accommodation at an agreed rental for a suitable candidate. The Hospital, of modern construction, is situated in pleasant surroundings adjacent to Epping Forest, within easy reach of London.

Applications, with details of experience and names and addresses of 2 referees, to reach Group Secretary, Epping Group Hospital Management Committee, St. Margaret's Hospital, Epping, Essex (from whom further information can be obtained), by 5th February, 1954.

WARWICK HOSPITAL. Applications are invited for the resident post of HOUSE OFFICER in Orthopædics. Work includes attendance at Clinics.

Applications, with copies of 2 recent testimonials, to the Administrative Officer, Warwick Hospital, Warwick.

WARWICK HOSPITAL. South Warwickshire Hospital GROUP (NO. 14). Applications are invited for the appointment of SENIOR HOUSE OFFICER (anæsthetics) for duties mainly at the above Hospital. The post is vacant, recognised for D.A., and application sent for recognition for F.F.A.

Applications, giving the names and addresses of 3 referees, should be sent to the Group Secretary, 87, Radford-road, Leamington Spa, as soon as possible.

WAKEFIELD. THE GENERAL HOSPITAL, Park Lodge-lane, WAKEFIELD. (160 Beds.) HOSPITAL MANAGEMENT COMMITTEE NO. 9 WAKEFIELD A GROUP. Applications are invited for the appointment of a SENIOR HOUSE OFFICER in General Surgery at the above Hospital. Terms and conditions of service are in accordance with the National Health Service Act and Regulations thereunder.

Applications should be made to the Group Secretary, Clayton Hospital, Wakefield.

WAKEFIELD A GROUP HOSPITAL MANAGEMENT COMMITTEE NO. 9. Applications are invited for the appointment of a RESIDENT or NON-RESIDENT ANÆSTHETIST (Junior Hospital Medical Officer grade), for work in all branches of surgery, in the Wakefield A and Wakefield B Groups, including thoracic anæsthesia at the Leeds Regional Thoracic Centre at Pinderfields Hospital, Wakefield. This post is recognised for the D.A. qualification. The salary and conditions of service being in accordance with the National Health Service regulations.

Applications should be made to—

W. READ, Group Secretary.

Clayton Hospital, Wakefield.

WARRINGTON GENERAL HOSPITAL. (368 Beds.) Applications are invited for the post of HOUSE SURGEON (Male or Female; recognised for pre-registration) at the above Hospital. National Health Service terms and conditions. The staffing of the Surgical Unit consists of a Senior Registrar, Registrar and 2 House Surgeons. The post offers a comprehensive training in surgery.

Apply, giving full particulars, to—

H. L. BOOT, Group Secretary,

Warrington and District Hospital Management Committee.

c/o General Hospital, Warrington, Lancs.

WATFORD HOSPITALS. West Herts Group Hospital MANAGEMENT COMMITTEE. Applications are invited for the post of RESIDENT ANÆSTHETIST (Senior House Officer grade) for the above Hospitals. Post recognised for the D.A.

Applications, with copies of 2 recent testimonials, should reach the Medical Officer-in-charge, Shrodells Hospital, Watford, as soon as possible.

WATFORD AND DISTRICT PEACE MEMORIAL HOS-PITAL, WATFORD, HERTS. (198 Beds.) Applications are invited from registered medical practitioners for the post of HOUSE SURGEON, recognised for pre-registration. Post vacant in March. Salary according to National Health Service scale.

Applications, stating age, qualifications, and experience, together with copies of 2 recent testimonials, should be sent to—

CYRIL HOPKINSON, Administrator.

WELSH REGIONAL HOSPITAL BOARD. Applications are invited for the appointment of a REGISTRAR in Pædiatrics to serve the Caernarvon and Anglesey Hospital Management Committee. The successful candidate will be based at the County Hospital, Bangor. The post is non-resident and will be subject to review at the end of the first year.

Forms of application should be obtained from the Senior Administrative Medical Officer, Welsh Regional Hospital Board, Cathays Park, Cardiff, within 14 days of appearance of this advertisement.

WELSH REGIONAL HOSPITAL BOARD. Applications are invited for the appointment of a REGISTRAR in General Medicine to serve the Caernarvon and Anglesey Hospital Management Committee. The successful candidate will be based at the Caernarvon and Anglesey General Hospital, Bangor, and may also be expected to serve other hospitals within the Group. The post is non-resident and will be subject to review at the end of the first year.

Forms of application should be obtained from the Senior Administrative Medical Officer, Welsh Regional Hospital Board, Cathays Park, Cardiff, within 14 days of appearance of this advertisement.

WELSH REGIONAL HOSPITAL BOARD. Applications are invited for the appointment of a REGISTRAR in E.N.T. Surgery to serve the Caernarvon and Anglesey Hospital Management Committee. The successful candidate will be based on the Caernarvon and Anglesey General Hospital, Bangor. There are ample opportunities for practical work and research. The post is non-resident and subject to review at the end of the first year.

Forms of application should be obtained from the Senior Administrative Medical Officer, Welsh Regional Hospital Board, Cathays Park, Cardiff, within 14 days of appearance of this advertisement.

WELSH REGIONAL HOSPITAL BOARD. Applications are invited for the appointment of a REGISTRAR in Psychiatry. The successful candidate will be based at Pen-y-Val Hospital, Abergavenny, and may also be expected to serve other hospitals in the district. The post is resident and will be subject to review at the end of the first year. A small flat will be available for a married candidate.

Forms of application should be obtained from the Senior Administrative Medical Officer, Welsh Regional Hospital Board, Cathays Park, Cardiff, within 14 days of appearance of this advertisement.

WELSH REGIONAL HOSPITAL BOARD. Applications are invited for the appointment of a REGISTRAR in Thoracic Surgery. The successful candidate will be based at Morriston Hospital, Morriston, near Swansea, and will also be expected to serve other hospitals in the district. The post may be either resident or non-resident and will be subject to review at the end of the first year.

Forms of application should be obtained from the Senior Administrative Medical Officer, Welsh Regional Hospital Board, Cathays Park, Cardiff, within 14 days of appearance of this advertisement.

WELSH REGIONAL HOSPITAL BOARD. Applications are invited for the appointment of a SENIOR REGISTRAR in General Medicine to serve the Glantawe Hospital Management Committee. The successful candidate will be based at Morriston Hospital, Morriston, near Swansea, and may also be expected to serve other hospitals within the Group. The appointment will be for a period of 2 years in the first instance, but subject to review at the end of the first year.

Forms of application should be obtained from the Senior Administrative Medical Officer, Welsh Regional Hospital Board, Cathays Park, Cardiff, within 14 days of appearance of this advertisement.

WELSH REGIONAL HOSPITAL BOARD. Applications are invited for the appointment of a REGISTRAR in General Surgery to serve the Glantawe Hospital Management Committee. The successful candidate will be based at Morriston Hospital, Morriston, near Swansea. The post is non-resident and will be subject to review at the end of the first year.

Forms of application should be obtained from the Senior Administrative Medical Officer, Welsh Regional Hospital Board, Cathays Park, Cardiff, within 14 days of appearance of this advertisement.

WELSH REGIONAL HOSPITAL BOARD. Applications are invited for the appointment of a REGISTRAR in General Surgery to serve the Rhymney and Sirhowy Valleys Hospital Management Committee. The successful candidate will be based at the Caerphilly and District Miners' Hospital, Caerphilly, Glam, and will also be expected to serve other hospitals within the Committee's area. The post is resident and will be subject to review at the end of the first year. Married quarters are available.

Forms of application should be obtained from the Senior Administrative Medical Officer, Welsh Regional Hospital Board, Cathays Park, Cardiff, within 14 days of appearance of this advertisement.

WELSH REGIONAL HOSPITAL BOARD. Applications are invited for the appointment of a REGISTRAR in Pædiatrics. The successful candidate will be based at St. David's Hospital, Cardiff, and may also be expected to serve other hospitals in the district. The post will be non-resident and subject to review at the end of the first year.

Forms of application should be obtained from the Senior Administrative Medical Officer, Welsh Regional Hospital Board, Cathays Park, Cardiff, within 14 days of appearance of this advertisement.

WESTON-SUPER-MARE GENERAL HOSPITAL. (110 Beds.) Applications are invited from registered medical practitioners for the resident appointment, now vacant, of HOUSE PHYSICIAN (non pre-registration). The appointment is for 6 months in the first instance and may be renewed for a further 6 months.

Applications, stating age, qualifications, and experience, together with names and addresses of 2 referees, should be addressed to the Secretary, Weston-super-Mare Hospital Management Committee.

WESTON-SUPER-MARE GENERAL HOSPITAL. (110 Beds.) Applications are invited from registered medical practitioners for the resident appointment of HOUSE SURGEON (non pre-registration). The appointment will be for a period of 6 months in the first instance and may be renewed for a further 6 months.

Applications, stating age, qualifications and experience, together with names and addresses of 2 referees, should be addressed to the Secretary, Weston-super-Mare Hospital Management Committee.

WINCHESTER GROUP HOSPITAL MANAGEMENT COMMITTEE. SOUTH WEST METROPOLITAN REGION. Applications are invited for the post of REGISTRAR in the Department of Pathology, preferably resident. The person appointed will work at the main hospital (311 Beds). Work will include all branches of pathology. Post recognised by the Examining Board in England for Diploma in Pathology.

Application forms obtainable from Secretary, Royal Hampshire County Hospital, Winchester, to be completed and returned within 14 days of publication of this advertisement.

WINCHESTER. ROYAL HAMPSHIRE COUNTY HOS-PITAL. (311 Beds.) SENIOR HOUSE OFFICER (orthopædics) required. Post recognised F.R.C.S. Wide experience available under area orthopædic team. Appointment for 6 months in first instance. Vacant middle February.

Applications, with copies of 2 testimonials, to the Secretary.

WINCHESTER. ROYAL HAMPSHIRE COUNTY HOS-PITAL. (311 Beds.) HOUSE SURGEON (post recognised by Royal College of Surgeons) required for general surgery with some E.N.T. duties. Approved pre-registration post, vacant immediately.

Applications, with copies of 2 testimonials, to the Secretary.

WORTHING HOSPITAL, Lyndhurst-road, Worthing, SUSSEX. WORTHING GROUP HOSPITAL MANAGEMENT COMMITTEE. Applications are invited for the post of RESIDENT SURGICAL OFFICER (Registrar grade) at the above Hospital, vacant 1st February, 1954. The post is recognised under the revised Fellowships regulations for the F.R.C.S. examination, but preference will be given to candidates holding the F.R.C.S. qualification.

Forms of application are available from the undersigned.

A. V. OAKTON, Group Secretary.

WORTHING HOSPITAL, Lyndhurst-road, Worthing, SUSSEX. WORTHING GROUP HOSPITAL MANAGEMENT COMMITTEE. Applications are invited from registered medical practitioners for the appointment of SURGICAL HOUSE OFFICER (Senior House Officer grade). The post is recognised for the revised Fellowship regulations in respect of the 6 months training required by candidates for the Final Fellowship examination.

Applications, stating age, qualifications, nationality and experience, together with copies of 2 recent testimonials, to be forwarded to the Hospital Secretary as soon as possible.

A. V. OAKTON, Group Secretary.

WOLVERHAMPTON HOSPITAL MANAGEMENT COM-MITTEE GROUP NO. 16 BIRMINGHAM REGION. THE ROYAL HOSPITAL, WOLVERHAMPTON. (An Associated Hospital of the University of Birmingham Medical School.) Applications are invited for the appointment of a JUNIOR HOSPITAL MEDICAL OFFICER in Pathology at The Royal Hospital, Wolverhampton. Salary £700–£50 (6)–£1000 p.a. Resident or non-resident. Post vacant 1st February.

Applications, naming 3 referees, should be addressed to—

W. COCKBURN, Secretary.

The Royal Hospital, Wolverhampton.

WOLVERHAMPTON HOSPITAL MANAGEMENT COMMITTEE GROUP NO. 16 BIRMINGHAM REGION.

The Royal Hospital, Wolverhampton (an Associated Hospital of the University of Birmingham Medical School)

SENIOR HOUSE OFFICER or HOUSE OFFICER (Fracture and Orthopædic Department), vacant 1st February.

HOUSE OFFICER (Ear, Throat and Nose Department), vacant now.

Women's Hospital, Wolverhampton

HOUSE OFFICERS (2), gynæcological and obstetric, 1 vacant mid-February, 1 vacant mid-March. Appointments recognised for M.R.C.O.G.

New Cross Hospital, Wolverhampton

HOUSE OFFICER (general surgery), vacant now.

Wolverhampton and Midland Counties Eye Infirmary

HOUSE OFFICER, vacant now. Appointment recognised for F.R.C.S. and D.O. examinations.

Applications, with copies of 3 recent testimonials, to be sent to W. COCKBURN, Group Secretary.

The Royal Hospital, Wolverhampton.

WINDSOR. KING EDWARD VII HOSPITAL. Obstetric AND GYNÆCOLOGICAL HOUSE SURGEON (Male or Female) required. Post vacant 1st March. National salary. Successful candidate will be resident at the Old Windsor Unit of the Hospital. Applicants are required to be members of a Medical Protection Society.

Applications, stating age, nationality, qualifications with dates, and experience, together with copies of recent testimonials or names of 3 referees, to Hospital Secretary by 6th February.

YORK A AND TADCASTER HOSPITAL MANAGEMENT COMMITTEE.

York. County Hospital, City Hospital, and Military Hospital (Civilian Wing) (General Hospitals of 269, 265, and 60 Beds respectively with full Consultant staff)

SENIOR HOUSE OFFICER in Anæsthetics, resident or non-resident, immediately, Salary £670, residence available at a charge of £153. Previous experience in anæsthetics desirable but not essential.

York. City Hospital (Modern General Hospital of 265 Beds with full Consultant staff)

SENIOR HOUSE OFFICER (resident) in General Surgery. Salary £670, less £153 for residence as from 1st February. Post recognised for F.R.C.S. Wide experience offered.

HOUSE SURGEON (resident) (pre-registration). Salary £350–£400, less £100 for residence as from 1st February. Post recognised for F.R.C.S. and includes gynæcology. Wide experience offered.

Applications, giving age, nationality, qualifications, experience, and names of 2 referees, immediately to the Secretary, York A and Tadcaster Hospital Management Committee, Bootham Park, York.

YORKSHIRE. EAST RIDING HOSPITAL MANAGEMENT COMMITTEE.

Westwood Hospital, Beverley, Yorks (218 Beds)

(*a*) ORTHOPÆDIC HOUSE SURGEON (Senior House Officer), vacant now. Recognised for F.R.C.S.

(*b*) HOUSE SURGEON (first, second, or third post), vacant end January. Pre-registration post. Recognised for F.R.C.S. General surgical duties, some orthopædic.

Broadgate (Mental) Hospital, Beverley, Yorks (650 Beds)

(*c*) HOUSE PHYSICIAN (first, second, or third post), vacant now.

Salary for (*a*) is £670 p.a., less £140 board, lodging; for (*b*) and (*c*) £350–£450, less £100 board, lodging. Fully qualified practitioners also invited to apply for pre-registration post.

Detailed applications to Secretary, Westwood Hospital, Beverley, Yorks.

NORTHERN IRELAND HOSPITALS AUTHORITY invite applications for a whole-time resident post as STUDENT PATHOLOGIST (Senior House Officer) at the Belfast City Hospital. The terms and conditions of the appointment will be in accordance with the Authority's application to Northern Ireland of the Spens Report.

Applications should be made on a form, which may be obtained (with further particulars) from the Secretary, Northern Ireland Hospitals Authority, Victory Buildings, 44–46, Queen-street, Belfast, and which must be returned so as to be received not later than 12th February, 1954.

NEW YORK. ALBANY HOSPITAL, Albany, New York, U.S.A. INTERNSHIPS and RESIDENCIES available in 700-Bed general, private Albany Hospital, directly connected with Albany Medical College. Approved for all major specialties. Participating in Exchange-Visitor Program. Salary range $1320–$2220 annually in addition to laundry, uniforms and room. All appointments being 1st July, 1954.

For further information apply to Medical Director.

NEW YORK. NEW ROCHELLE HOSPITAL, New ROCHELLE, NEW YORK, U.S.A. (360-Bed general community hospital.) Approved by American College of Surgeons and American Medical Association for Internship and Residency Training. Only graduates from approved university schools accepted. Term of Internship: 1st July, 1954–30th June, 1955. INTERNES—$100 per month plus full maintenance. Return passage to England paid by Hospital after completion of internship.

Apply Superintendent.

NEW YORK. VASSAR BROTHERS HOSPITAL. 1-year ROTATING INTERNSHIPS. We solicit inquiry relative to several vacancies on an active rotating intern service with excellent teaching facilities. Intern salary offered is $150 per month plus full maintenance.

ELLISON H. CAPERS, Administrator.
Vassar Brothers Hospital, Poughkeepsie, N.Y.

Public Appointments

EAST SUFFOLK COUNTY COUNCIL invites applications for the appointment of ASSISTANT COUNTY MEDICAL OFFICER (23/44ths) AND MEDICAL OFFICER OF HEALTH (21/44ths) for the Borough of Eye, the Stowmarket Urban District, and the Gipping, Hartismere and Samford Rural Districts (total population approximately 61,750). The salary in respect of the posts, based on Industrial Court Awards 2285 and 2321 will be between the minimum of £1349 and the maximum of £1669 p.a., rising to the maximum by appropriate annual increments in accordance with the awards. Car allowance according to County Council scale. Duties will include school medical inspection, maternity and child-welfare work and general public health. The possession of a Diploma in Public Health is essential, and previous experience with a Local Authority would be an added qualification. The appointment is subject to the provisions of the Sanitary Officers (Outside London) Regulations, 1935, and the Local Government Superannuation Acts. The successful candidate will be required to pass a medical examination.

Forms of application and any further information can be obtained on application to the County Medical Officer of Health, County Hall, Ipswich, to whom all applications should be returned not later than 6th February, 1954.

G. C. LIGHTFOOT, Clerk of the County Council.

HER MAJESTY'S COLONIAL SERVICE. Malaya. Applications are invited for the following posts in the Medical Department, Singapore:—

MEDICAL REGISTRARS to undertake duties in 1 of 2 Medical Units in the Singapore General Hospital, which is a teaching hospital. Candidates should possess a Membership of 1 of the Royal Colleges of Physicians and have had 4 years postgraduate experience.

SURGICAL REGISTRARS to undertake duties in a Surgical Unit in the Singapore General Hospital. 1 of these units is an Orthopædic Unit. Candidates should possess a Fellowship of 1 of the Royal Colleges of Surgeons and have had 4 years postgraduate experience.

Appointments are on short-term contract for 3 years resident service in the first instance. On satisfactory completion of service for the period of the contract, a gratuity is payable at the rate of £300 p.a., rising by annual increments of £10 p.a. to £450. Incremental credit in this gratuity scale corresponds with incremental credit in the salary scale. Alternatively, Doctors in the National Health Service may, by forgoing the gratuity, continue to participate in the National Health Service superannuation scheme during their Colonial service and receive a resettlement grant of 20% of the aggregate of their Colonial salary on leaving the Colonial Service. The emoluments of the post comprise a basic salary; a variable cost-of-living allowance and expatriation pay and expatriation allowances. Basic salary is on an incremental scale of £890–£1680 p.a., but candidates would be granted increments in that scale in respect of the required qualifications and experience and would enter the scale at an initial salary of approximately £1272. The initial salary would be less if any of the required experience were gained below the age of 25 and slightly more if the candidate had more than the required 4 years experience. The other emoluments vary according to salary and the family circumstances of the Officer, but on a basic salary of £1272, the total inclusive emoluments are approximately £1686 a year for an unmarried officer, £2050 for a married officer, and £2254 for a married officer with dependent children. The emoluments referred to above apply only to Doctors eligible for "expatriate terms" under Malayan Regulations (i.e., those whose permanent homes are in the United Kingdom, Irish Republic, Australia, Canada, &c.).

The climate is, for the tropics, healthy. European children do well up to the age of about 6 and schools are available locally. Income-tax is payable at Singapore rates which are lower than those in the United Kingdom. Government quarters with heavy furniture are provided at a low rental, or an allowance is paid in lieu of quarters. Free passages are provided for the doctor, his wife, and children under the age of 10 once each way during each tour of duty of 3 years. On first appointment, however, such passages are limited to 4 persons besides the Officer himself. Generous home leave is granted and local leave is permissible.

Application forms can be obtained from the Director of Recruitment (Colonial Service), Colonial Office, Sanctuary Buildings, Great Smith-street, London, S.W.1 (quoting reference No. CDE. 117/60/06).

MANCHESTER. CITY OF MANCHESTER EDUCATION COMMITTEE. Applications are invited for the post of MEDICAL OFFICER (School Health). Preference given to candidates with special experience in diseases of children and retinoscopy, and holding D.P.H. or D.C.H. Salary £950–£1300. Previous experience in a similar appointment with another Local Authority may be taken into account in determining initial salary.

Application form and particulars obtainable (stamped addressed foolscap envelope) from Chief Education Officer, Education Offices, Deansgate, Manchester, 3, to be returned to Town Clerk, Town Hall, Manchester, 3, by 20th February. Envelope to be endorsed "Medical Officer (School Health)."

OLDBURY. BOROUGH OF OLDBURY. Worcestershire COUNTY COUNCIL. DEPUTY BOROUGH MEDICAL OFFICER OF HEALTH AND DEPUTY COUNTY DIVISIONAL MEDICAL OFFICER AND DEPUTY SCHOOL MEDICAL OFFICER. Applications from registered medical practitioners with D.P.H. are invited for this appointment. Medical Whitley Council scale salary (£950, rising by £50 to £1300 plus £50 as Deputy).

Application forms from County Medical Officer, County Buildings, Worcester.

K. PEARCE, Town Clerk, Oldbury.
(L145.) W. R. SCURFIELD, Clerk of the County Council.

FACTORY DOCTORS. Factories Acts, 1937 and 1948. The following appointment as Appointed Factory Doctor is vacant. Apply to Chief Inspector of Factories, 8, St. James's-square, London, S.W.1.

District	*County*	*Latest date for receipt of applications*
FRODSHAM ..	CHESTER ..	6TH FEBRUARY, 1954

IPSWICH. COUNTY BOROUGH OF IPSWICH. Appointment of DEPUTY MEDICAL OFFICER OF HEALTH, DEPUTY PRINCIPAL SCHOOL MEDICAL OFFICER AND DEPUTY PORT MEDICAL OFFICER. Salary scale £1233 6s. 8d.–£50–£1483 6s. 8d. Commencing salary may be determined having regard to the previous local authority service of the successful candidate. Applicants must be duly registered medical practitioners possessing the D.P.H., and preference will be given to those who have had previous experience in relation to the School Health and Mental Health Services.

Application forms and conditions of service will be forwarded on application to the Medical Officer of Health, Elm-street, Ipswich.

Town Hall, Ipswich. J. C. NELSON, Town Clerk.

NORTH EASTERN GAS BOARD. Applications are invited from suitably qualified persons for the position of Whole-time MEDICAL OFFICER to supervise and coördinate the medical services of the Board and to undertake the day-to-day medical services of part of the Board's area. Candidates should have had experience of industrial medicine and of administration in this field. The commencing salary will be in the region of £1750 p.a., depending on age and qualifications. The appointment is of a permanent nature and the successful candidate will be required to pass a medical examination and join the Staff Pension Scheme.

Applications, giving details of age, education, qualifications, and experience, together with the names of 3 referees, should be received by the Secretary, North Eastern Gas Board, Bridge-street, Leeds, 2, not later than 30th January, 1954.

NOTTINGHAMSHIRE COUNTY COUNCIL. Mansfield WOODHOUSE AND WARSOP URBAN DISTRICT COUNCILS. Mixed appointment. Applications are invited from registered medical practitioners for the mixed whole-time appointment of ASSISTANT COUNTY MEDICAL OFFICER AND MEDICAL OFFICER OF HEALTH of the Urban Districts of Mansfield Woodhouse and Warsop. Applicants must have had at least 3 years professional experience since qualifying; be experienced in the duties of Medical Officer of Health, School Medical Officer, and the care of mothers and young children; and possess a Diploma in Public Health. Salaries are in accordance with Awards 2285, 2231, and 2452 of the Industrial Court for Public Health Medical Officers holding mixed appointments, namely:—

(*a*) Assistant County Medical Officer (28/44ths), £800–£36 7s. 3d.–£945 9s. (on scale £1100–£50–£1300, plus loading in accordance with Spens formula).

(*b*) Medical Officer of Health (8/44ths each District), total of £563 12s. 8d.–£18 3s. 8d.–£636 7s. 4d. (on scale £1450–£50–£1650 plus 8/44ths of £100, each District).

Application forms and conditions of appointment are obtainable from my office, and applications should reach me by 5th February, 1954. Canvassing disqualifies.

K. TWEEDALE MEABY, Clerk of the County Council.

Shire Hall, Nottingham.

NORTHUMBERLAND. COUNTY OF NORTHUMBERLAND. National Health Service Act, 1946. Joint appointment of AREA EXECUTIVE MEDICAL OFFICER for the West Area and MEDICAL OFFICER OF HEALTH for the Urban District of Hexham and the Rural Districts of Bellingham, Haltwhistle and Hexham. Applications are invited from registered medical practitioners for the joint appointment of Area Executive Medical Officer for the West Area and Medical Officer of Health for the Urban District of Hexham and the Rural Districts of Bellingham, Haltwhistle and Hexham. The salary for the joint appointment will be £1487 10s. rising by 3 annual increments of £56 5s. and 1 of £62 10s. to £1718 15s., plus a travelling allowance in respect of a motor-car not exceeding 12 h.p. The person appointed will be required to give his, or her, whole time to the duties of the joint appointment and must not engage directly or indirectly in private practice. The appointment is subject to the provisions of the Local Government Superannuation Act, 1937, to the National Conditions of Service and to 3 months notice in writing on either side, and the successful candidate will be required to pass a medical examination.

Application forms and further particulars may be obtained from the Clerk of the County Council, County Hall, Newcastle upon Tyne, 1, to whom applications must be submitted not later than 6th February, 1954.

General Practice

For an Executive Council post (England and Wales) apply on form E C.16A obtainable from the council. Mark envelope "Vacancy."

LUDLOW, SHROPSHIRE. Applications invited for VACANCY. List at present 1700 approximately. Surgery accommodation not available. Apply on E.C.16A, before 1st February, 1954, to F. MOONEY, Salop Executive Council.

"Abbeydale," 39, Abbey-foregate, Shrewsbury.

WESTON-SUPER-MARE, SOMERSET. Applications are invited for a VACANCY at 1st April, 1954, arising as a result of a retirement of a practitioner. Surgery and residence may not be available. List at present approximately 1200, all prescribing. Application on Form E.C.16A not later than 12th February, 1954, to the Clerk, Somerset Executive Council, 11, Elmhyrst-road, Weston-super-Mare, Somerset.

Miscellaneous

To non-professional posts the Notification of Vacancies Order 1952 applies

EAST LANCASHIRE HOMES FOR DISABLED SAILORS AND SOLDIERS, BROUGHTON HOUSE, Park-lane, KERSAL, MANCHESTER. Applications are invited for the post of RESIDENT MEDICAL SUPERINTENDENT. Single man or widower preferred. Salary £650 p.a. and full residential emoluments. Position would suit retired Service Officer. The Homes are not included in the National Health Scheme. Applications should be received by 15th March, 1954.

Apply to E. MESSENGER, F.C.A., Secretary.

18, Booth-street, Manchester, 2.

Reynolds Jamaica Mines, Ltd., require a Resident Medical Officer with qualifications registrable in United Kingdom for their clinic in Jamaica, B.W.I. Work mainly general practice among administrative staff, industrial workers and their families (total numbering approximately 600). Officer will have sole charge of the clinic which has X-ray and laboratory facilities. Appointment to begin March, 1954, with salary by arrangement not less than £1300 per year. Furnished house provided at small monthly rental. First-class passages paid from United Kingdom for employee and his family.—Further details and application form will be sent on receipt of preliminary application, stating qualifications and experience and including photograph, addressed to: Resident Manager, Reynolds Jamaica Mines, Ltd., Lydford P.O., St. Ann, Jamaica, B.W.I.

Medical Officer required for whaling station at South Georgia leaving mid-February returning May, 1955. Age preferably over 30, some surgical experience essential. Salary £100 per month all found. Applications, giving details of age, qualifications and experience, with copies of 3 recent testimonials and names of 3 referees, to be sent forthwith to: CHR. SALVESEN & CO., 29, Bernard-street, Leith.

Assam. British Medical Officer required for old-established group of Tea Estates. Age preferably 30–40 years. Tropical clinical and hygiene experience an advantage. 3-year agreement. Gross income, including dearness allowance, the equivalent in Rupees of approximately £2100 rising to £2300 p.a. Bungalow with basic furniture, lighting, heating, and servants free; car provided.—Applications, with 3 names for reference purposes, to Address, No. 893, THE LANCET Office, 7, Adam-street, Adelphi, London, W.C.2.

Laboratories of Pathology and Public Health. Applications are invited from registered medical practitioners (Male or Female) for the post of Assistant Pathologist. Commencing salary £1000–£1300 p.a. according to previous experience, rising by annual increments of £100 to £1800.—Application in writing, stating age and qualifications, together with copies of 2 testimonials or the names of 2 referees, should be sent on or before 1st March, 1954, to the Secretary, 6, Harley-street, London, W.1.

Wanted, Assistant, Tyneside area—old established industrial practice—list 6000 plus outside appointments. Obstetrical and anæsthetic experience desirable. Car essential. Salary £1000, car allowance £200. Partnership and house purchase after 6 months probation.—Address, No. 888, THE LANCET Office, 7, Adam-street, Adelphi, London, W.C.2.

British Nurse (32), S.R.N., S.R.M., B.A. (Lond.), writing and speaking fluently English, German and French, seeks post as doctor's receptionist in London area.—Miss D. A., 26, Pashley-road, Eastbourne.

Experienced Doctor's Secretary, male, 27, seeks post, preferably with consultant. Capable driver.—Address, No. 891, THE LANCET Office, 7, Adam-street, Adelphi, London, W.C.2.

For Sale, as a going concern, the Scottish Nursing Home, 9, Hilltop-road, N.W.6. Freehold, good operating theatre, 10 patients.

Harley-street. Spacious second-floor consulting-room with examination-room adjoining to be let on new lease. Rent £350 p.a. inclusive of rates, hot water, and cleaning; also use of lift, waiting-room and an attendant to receive callers.—Full particulars from Owners' Agents: JONES, LANG, WOOTTON & SONS, 53/4, South Audley-street, W.1. Tel.: MAYfair 4651.

Microscopes. Highest prices paid for good modern types. Send or bring your equipment for valuation.—WALLACE HEATON LTD., 127, New Bond-street, W.1.

Applicants for posts requiring testimonials copied or duplicated should communicate with MANTON SECRETARIAL SERVICE, LTD., 98, Victoria-street, S.W.1 (Phone: VICtoria 0141), who are specialists in this kind of work.

"Pregnancy Diagnosis by the Xenopus Method." 24-hour service.—Send specimen of urine and £1 1s. fee to: WELBECK BIOLOGICAL LABORATORIES, 26, Park-crescent, Portland-place, W.1 (Telephone: MUSeum 5386–7).

For sale. Flame Photometer Model 1B by Process and Instruments Inc. Imported under Licence, 1952. 110–250 v. Suitable for Absolute and Lithium Internal Standard Determinations. Operates on propane and compressed air. Complete with compressor, 230 v. A.C. £400. May be viewed by appointment.—Address, No. 889, THE LANCET Office, 7, Adam-street, Adelphi, London, W.C.2.

For Sale. Unused M.S.E. Freezing Microtome, including standard freezing attachment, 2 microtome knives, knife-handle, tubular knife-back.—Address, No. 886, THE LANCET Office, 7, Adam-street, Adelphi, London, W.C.2.

For sale. Kremp Microscope, good condition, movable object table and crosstable. Micrometer and Macrometer. Fixed tube. Adjustable condenser. Objectives 4 mm. and 7 mm. £60 or offer.—Address, No. 887, THE LANCET Office, 7, Adam-street, Adelphi, London, W.C.2.

British Journal of Industrial Medicine, Volume 1 (1944). £3 offered for the 4 numbers.—Address, No. 890, THE LANCET Office, 7, Adam-street, Adelphi, London, W.C.2.

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1 *Arch. Dermat. & Syph.* (*1951*), *64 : 41, July.*
2 Ibid. (*1952*), *65 : 228, February.*
3 *Communication to Abbott Laboratories* (*1951*).
4 *J. Missouri M.A.* (*1952*), *49 : 911, November.*

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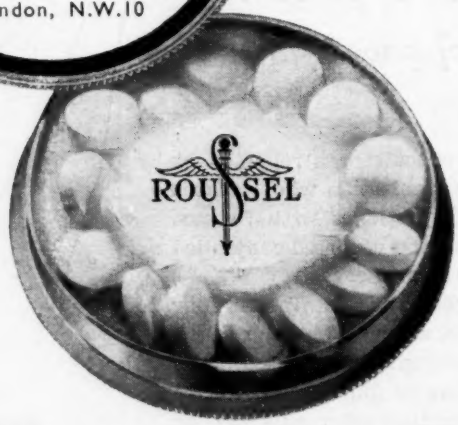

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